A WORKSHOP CONDUCTED BY THE VOCATIONAL HOME ECONOMICS TEACHER TO PROMOTE NUTRITION EDUCATION IN THE ELEMENTARY SCHOOLS

By

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"And whatsoever ye do in word or deed, do all in the name of the Lord Jesus, giving thanks to God and the Father by him." Colossian 3: 17, KJV.

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CHAPTER I

INTRODUCTION

Description of the Problem

Nutrition education, particularly among elementary school children, is one of the challenging responsibilities of the secondary home economics teacher. It is primarily through proper nutrition that good health, which involves the physical, mental, and social well-being of the individual, produces favorable conditions for learning to take place. Good health is important for the child to be happy, satisfied, and well adjusted. Therefore, the earlier in the child's life that nutrition education can be implemented to produce behavioral changes in health practices, the more likely the child will be able to realize his full potential for a creative life of freedom and dignity (Eppright and Lebaron, 1960).

Nutrition education can be integrated effectively in the entire elementary school curriculum if the classroom teacher has accurate information and if innovative methods of teaching are known and used. The secondary home economics teacher can serve as a subject-matter consultant in nutrition education. This can be accomplished through curriculum planning meetings and in-service workshops for elementary teachers. The secondary home economics teacher also has the challenge to strive to motivate parents and teachers to practice good dietary habits through adult education classes and use of the mass media for disseminating

nutrition information. The home economics teacher thus may assume the responsibility of influencing dietary practices of elementary school children, teachers and adults. Proper nutrition and dietary habits help people to live more effectively in society (Currie, 1970).

Statement of the Problem

The problem of this research was to conduct a workshop for the promotion of nutrition education in the elementary schools of Blackwell, Oklahoma by the vocational home economics teacher. The workshop was planned and conducted for the elementary school teachers. Evaluation of the workshop was completed by the analysis of a nutrition education questionnaire, immediately after and five months after the workshop.

Objectives of the Study

The objectives of this study were:

1. To review basic nutrition information and to investigate innovative teaching techniques which the elementary teacher could use for integrating nutrition education in the elementary school curriculum.

2. To determine the needs of elementary school teachers for nutrition information and for teaching techniques to integrate nutrition education in the elementary school curriculum.

3. To increase understanding of elementary school teachers in nutrition information and effective methods for integration of nutrition education into the elementary curriculum. In order to accomplish this, a nutrition education workshop was conducted.

4. To evaluate the degree to which nutrition education curricula

was accepted and incorporated into use by the elementary school teachers.

Significance

As we launch into the '70's, home economists are challenged to accept more complex responsibilities. Food and nutrition research indicate evidence of the need to facilitate improving the lives of families and individuals through adequate nutrition. President Richard Nixon's White House Conference on Food, Nutrition and Health, December, 1969 produced evidence of the urgency for all people to improve nutrition practices.

The panel on nutritional surveillance of the White House Conference determined that the identification of undernourished and malnourished groups was basic to any program to correct nutritional deficiencies. Among their recommendations they placed the first attention to preschool children, expectant mothers, primary school children, and low-income persons. Regardless of the specific problems of vulnerable groups, nutrition education was considered an essential part of all special programs (Mayer, 1970).

Nutrition education and proper dietary practices are essential for the well-being of all people, from the affluent to the disadvantaged (Hayes, 1969). Recognizing the urgency of immediate action, as well as the need for a long-range program in nutrition education in the elementary and high schools, the panel on Nutrition Teaching and Education of the White House Conference on Food, Nutrition and Health made the following recommendations:

> A dynamic nutrition education program that begins in early childhood and continues through the elementary and secondary schools can help young children to acquire posi-

> tive attitudes toward food and can help older children to assume responsibility for their own food selection and prepare them for adult and parental responsibility. As future citizens in a democracy, children must develop acceptable nutritional practices and a sense of social consciousness to enable them to participate intelligently in the adoption of public policy affecting the nutrition of people (Mayer, 1970).

Realizing that nutrition education in the schools can be effectively integrated into many curriculum areas, the panel felt that learning opportunities should be designed to accommodate individual differences arising from cultural, economic, personal, and family conditions.

> By applying the best of what is known about how people learn, by utilizing new educational techniques ..... by using new resources, by transmitting a feeling of excitement about the world of food, nutrition education programs that are dramatic and vital can be developed in schools (Mayer, 1970).

Anderson and Browe (1960) stated that the real job of planning for health and efficiency of people today and in the future depends upon the formation of good health habits in today's children. Therefore, the educators must continuously increase their efforts to update and strengthen the curriculum and instruction related to nutrition education. The literature substantiated the fact that the elementary educators, along with others, need to apply nutrition information in their teaching.

Researchers at the White House Conference on Food, Nutrition and Health and other professional people have increased the nation's awareness of the nutritional status of individuals in our nation and the world. Action has been taken nationally. Dean Lela O'Toole, president of the American Home Economics Association, 1969-1970, and dean of the Division of Home Economics at Oklahoma State University included this concern on the agenda of the National AHEA convention at Cleveland, Ohio (Coplan, 1970).

Therefore, a strong, effective leadership in nutrition education which the secondary home economics teacher can provide through her consultant services is our challenge as educators.

Assumptions

Assumptions which were basic to this study include:

1. Nutrition education can inform individuals and, thus, stimulate interest in better health.

2. The secondary home economics teacher has numerous opportunities to acquire knowledge pertaining to nutrition research, innovative approaches to nutrition teaching,and resource materials in foods and nutrition which are not available to the elementary school teacher.

3. In-service education in nutrition for the elementary school curriculum by the secondary home economics teacher may promote integration of nutrition education in the curriculum.

4. A variety of approaches and methods of nutrition education in the elementary school is desirable for adaptation of the curriculum to students of varying needs and abilities.

Limitations of the Study

This study was limited in involvement to the elementary school teachers of Blackwell, Oklahoma, the superintendent, curriculum director, high school principal and the secondary vocational home economics teacher. The workshop was limited in time to seven hours. Analysis of the findings of this study was limited to the responses of questionnaires which were answered immediately following the workshop and five months after the workshop.

Definition of Terms

For the purpose of this study, the following terms were defined:

Concepts - refers to "an abstraction representing the world of objects and events and is a means of organizing these into categories" (AHEA, 1967, p. 22).

Conceptual framework - "permits flow of basic nutritional information in logical steps. It helps to set priorities on the information presented and on the activities to be planned" (Brown, 1970, p.3).

Elementary school in Blackwell, Oklahoma - refers to kindergarten through grade six.

Good nutrition - supplies two-thirds or more of the recommended level for all nutrients (Sebrell, 1969).

Need - for nutrition education refers to the concerns that food is more than nutrition. It is concerned with the physical, psychological, intellectual, and social life of man (Pattison, Eppright, and Barbour, 1967).

Nutrition education - is planned nutrition instruction which includes all types of published materials, books, magazines, pamphlets, and audio-visuals (Martin, 1971).

Procedure

The researcher followed this procedure in order to achieve the objectives of this study:

1. The first objective was to review nutrition information and to investigate innovative teaching techniques which the elementary school teacher could use for integrating nutrition education in the elementary school curriculum. The researcher had received a background of nutrition

information through the college courses required for the home economics teachers. In addition, graduate courses were studied to gain current nutrition information. A course entitled, "Creative Teaching of Nutrition", was especially helpful to the researcher in identifying and investigating the innovative teaching techniques which the elementary teacher can use in integrating nutrition education in the elementary school curriculum. Additional resources for nutrition education were the Grade Teacher and Instructor, professional magazines for the elementary schools, books, and the publications concerned with nutrition education.

2. The second objective was to determine the needs of the elementary teacher in Blackwell, Oklahoma, for nutrition information and for teaching techniques which would assist them to integrate nutrition education in the elementary school curriculum. Prior to the workshop an interview questionnaire was developed by the researcher to determine the needs of a selected sample of the teachers. The interviews which were conducted facilitated the construction of behavioral objectives for the workshop.

3. In order to promote understanding by the elementary school teacher in nutrition information and effective methods for integration of nutrition education into the elementary curriculum, a five day workshop was planned by the researcher. The conceptual approach to nutrition education was used to present this information to the teachers at the workshop. The researcher conducted a one hour session each of the first three days and a two hour session each of the last two days during the in-service period.

4. The degree to which the nutrition education curricula was

accepted and incorporated into use by the elementary school teacher was evaluated by analyzing the responses obtained from two questionnaires. These responses were solicited from the elementary school teachers immediately after the workshop and five months after the workshop.

Summary

This chapter has contained a description and statement of the problem, objectives of the study, significance of the study, assumptions, limitations of the study, definitions of terms, and procedure. A review of the literature which provided necessary background for this study is shown in Chapter II. In Chapter III the procedure for implementing the work is described. The production of the workshop is given in Chapter IV. An analysis of the workshop is found in Chapter V with the summary, conclusions and recommendations presented in Chapter VI.

CHAPTER II

REVIEW OF LITERATURE

Introduction

Education in nutrition education has taken an up-surging trend in the 70's. Nutrition education in the past has not necessarily motivated individuals to improve their food habits. Educators cannot control all of the factors which produce malnutrition in America. However, there are more persons in the United States malnourished because of nutritional ignorance and misinformation than because of poverty, according to Mann (1969). Nutrition educators must meet the challenge to eliminate the malnutrition in this country and the world through relevant methods of teaching for today's society (Livingston, 1970, p. 26).

Home economists have the opportunity and responsibility as nutrition experts to help individuals to adopt food habits that will enable them to achieve adequate nutritional status. Home economists are dedicated to humanity and the current needs of mankind may be served through appropriate innovativeness. "We cannot afford to stall or falter in our commitment or our awareness of the needs of all mankind--all races, all socio-economics groups, all people here and everywhere" (Tacionis, 1972, p. 35). This philosophy reiterates the challenges that were expressed by the Committee on Philosophy and Objectives of Home Economics, established by the American Home Economics Association in preparation for its fiftieth anniversary in 1959. This committee concluded that if home

economics was to meet the challenges of today and the future it must serve individuals and more families more effectively; expanded research must focus on needs of individuals and families; and the education of the home economist must be strengthened (McGrath and Johnson, 1968, p. 2).

The educational stance of the professional worker in nutrition education in attempting to change behavior is one of the most significant issues of our time (Marshall, 1971). Education by definition implies change. James P. McFarland (1972), chairman of the board and chief executive officer of General Mills, Incorporated, explained the nutrition-motivation problem in the following words:

> We all recognize, I'm sure, that motivation is equally as important as nutrition education and offers a problem that is even more difficult to solve....Some people obviously are malnourished because they can't afford to buy the necessary food; this is an economic problem. Some people are malnourished even though they have money; they don't know what to buy. This is an educational problem. But many people are malnourished even though they have the money and know what to buy; they just don't care about good nutrition. This is a motivational problem. Attacking it may well call for dramatic new approaches in the years ahead (p. 34).

Nutrition education for all segments of society and all ages has always been of vital importance. A nationwide action concerning malnutrition has never been as apparent as during the time following the White House Conference on Food, Nutrition, and Health, 1969. The review of literature in this chapter will include research findings in regard to the effects of nutrition on the development of animals and humans; information on national nutrition conferences and surveys depicting the nutritional status of the population of the United States; examples of nutrition education programs in elementary schools in the United States; and concepts for the Blackwell nutrition education work-

shop. The national approach to nutrition education has furnished a perspective which was essential to the future of the nutritional status of all Americans.

Effect of Nutrition on Development of Animals and Humans

A study of the relationship between malnutrition and its consequences supports the fact that there was a close relationsihp between the nutritional status of malnourished children, their ability to achieve growth potential, and their capacity to perform as members of society (Martin, 1971, p. 51). The nutritional status is determined first, by the quality and quantity of food eaten by the child. Second, it is affected by health and disease which directly or indirectly affect dietary intake and nutritional status. The third factor involved was the general environment, including such influences as social and economic status, educational background of parents, and patterns of child care (Ricci, 1970).

Cravioto and Delicardie studied children from seven to twelve years of age in southwestern Mexico. They found that there was a positive relationship between continuing malnutrition and low stature and poor intersensory integrative development. These children might not be able to succeed in school subjects. Consequently, malnutrition might have been the starting point for subsequent school failure and subnormal behavior function (Scrimshaw and Gordon, 1968).

Observations in studies of the relationship of undernutrition during infancy and subsequent brain growth and intellectual development were continued for a period of eleven years, 1955 to 1966, by Stoch and

Smythe. Intellectual and psychological assessment and electroencephalograms showed that undernutrition during active brain growth, birth to two years of age, resulted in reduced brain size and impaired intellectual development (Scrimshaw and Gordon, 1968, pp. 278-289).

Stewart (1971) agreed with Read (1970) that the brain grows most rapidly five months before to ten months after the birth of the child. The brain growth was dependent on a supply of energy and nutrients for normal growth. Mildly inadequate intake of specific nutrients which occurred frequently among the poor affected the functioning of the central nervous system, and, therefore, the learning ability and behavior of the child. Prolonged inadequate calorie or nutrient intake resulted in weakness, fatigue, and the slowing down of motor skills. The performance of this child in school would be very slow. Improved nutrition alone will not correct the deficiency. Both improved educational opportunities and improved environmental stimulation should be provided in a coordinated effort to develop the child's potential (Read, 1970).

Richard H. Barnes presented a paper to the AHEA 60th Anniversary meeting in Boston in which he further distinguished between the effect of malnutrition and some other factors which affect mental development (Barnes, 1969). Barnes was associated with a five year research project which demonstrated that early malnutrition caused a change in behavioral development. The change was in the emotions instead of learning. This same hypertension of animals was observed in the rat feeding experiment which was conducted at one of the elementary schools in the spring of 1971 at Blackwell, Oklahoma. The research animals were supplied by the National Dairy Council. The pair of rats which was fed a snack diet for the period of the experiment, six weeks, would run on the

exercise wheel for twenty turns without stopping while the rats on the Type A School Lunch, balanced diet, were quiet and content.

The increased tension in the pigs studied by Barnes produced a negative effect on their learning ability. Barnes points out that severe malnutrition very early in the life of the child may cause long-lasting effects which are also severe. Thus, the poor health of both animals and humans has the effect of decreasing their exploration of environment. As this behavior accumulates, cognitive retardation may occur (Levitsky, 1971, p. 18).

Leverton explains that even if the central nervous system develops sufficiently, it continues to be susceptible to specific types of dietary deficiencies in any age group. Some of the milder forms of deficiences which still interefere with learning and performance are listed here.

1. Lack of thiamine causes anxiety, irritability, depression and increased sensitivity to noise and pain.

2. Insufficient iron results in lowered hemoglobin, reducing the capacity of the blood to carry oxygen needed for normal functioning of the brain.

3. Inadequate amounts of niacin result in lassitude, apprehension and depression.

4. Lack of vitamin B-12 produces mental confusion.

5. Too little iodine results in low basal metabolic rate and physical and mental languor.

6. In their early stages, mild forms of undernutrition are accompanied by an increase in motor restlessness; in later stages, depression of motor activity sets in (Cameron, 1970, p. 30).

Obesity in all segments of the population is another of the most difficult malnutrition problems which must be dealt with by nutrition educators in the United States today. Effectively controlling the weight throughout childhood is most desirable. Obesity is the result of eating more calories than the body needs to function. Heredity, psychological, and cultural patterns were other causes of obesity. Maddox (1960) stated that scientists agreed on the importance of teaching a child in early life the habit of not getting fat. The mother must be taught how to plan meals and the child must also learn to choose food properly in early childhood (Sebrell, 1960).

Sharp, Henry, Sweany, Meadow, and Pietra (1964) reported that health risks and disease associated with overweight and obesity involve a great load placed upon the heart and circulatory system, especially with muscular effort. Obesity during childhood may seriously affect the child's emotional development, his success in sports and other physical activities, and his attainment of physical fitness. King (1970, p. 190) stated that the challenge to those involved with nutrition education encompasses the problem of individuals meeting all nutritional requirements without an excess of calories, a problem which is as great as the problems of deficiency in the diet.

National Conferences and Surveys on Nutritional Status in the United States

The government of the United States has demonstrated its interest in nutrition education by sponsoring national conferences in Washington, D. C. since 1941. The purposes and goals of these conferences were:

1. To appraise current nutrition knowledge, various techniques of adding to it, and ways of disseminating it.

2. To evaluate our food supply and the nutriture of our people.

3. To study the influence of technological improvements in the production, distribution, and processing of food.

4. To measure the impact of changing sociologic, economic, and political conditions upon the diets and food habits of our people.

5. To focus attention on dietary problems which are unique to particular age groups, and to find the best techniques for teaching those groups better food habits.

6. To discuss and assess the role of each specialist in his own field in relation to roles of other specialists as a means of achieving maximum cooperation toward progress in nutrition education (Eppright, Pattison, Barbour, 1967, pp. 218, 219).

National Nutrition Conference for Defense, 1941. Immediately before the first National Nutrition Conference in 1941, the committee on Food and Nutrition of the National Research Council formulated the Recommended Daily Allowances for the nutritive essentials for daily diets. These Allowances were accepted and revisions were not made until 1963. The purposes of the Recommended Daily Allowances are to serve as a guide for planning and evaluating diets in the United States. The 1941 committee approved these Allowances.

The first National Nutrition Conference, 1941, also encouraged continuous research to increase knowledge of the aspects of food and nutrition. The education of doctors, dentists, teachers, social service workers, public health nurses, and other professional workers was

essential. The mobilization of every educational method and many national, state, and community services contributed in ways to effect the nutritional level of the people of the United States. The problems resulting from unemployment and inadequate incomes were considered in relation to nutrition of people. Practical devices, such as the Donated Food or Food Stamp Plan, to provide adequate meals for the disadvantaged were an aid to maintaining the American standard of living. Greater emphasis was also placed on consumer education in foods and nutrition.

An example of the timeliness in 1972 of one of the recommendations which was given at the first Conference is the Food Stamp Plan or Donated Food Program. It is now in effect in all areas of the United States. The disadvantaged, regardless of age, receive this service through the school lunch and breakfast programs, day care centers, summer feeding programs for children, old age and nursing homes, and emergency situations.

National Food and Nutrition Institute, 1952. The Institute was confronted with new dilemmas which had developed as a result of the more prosperous economic conditions in our nation and the changing cultural scene. Obesity, chronic disease in the aged, and the assessment of the nutritional status of our population on a broad, standardized basis in order to learn more about the possible relationships of diet to health were the major considerations of the 1952 Institute.

By 1952, outright deficiency diseases had disappeared so subclinical deficiencies were becoming apparent, such as loss of vigor, retarded growth in children, low resistance to infection, increased tooth decay, and abnormal births. These were all viewed as possible indications of poor nutrition. W. H. Sebrell, then director of the

National Institute of Health, Public Health Service, emphasized changes in federal legislation regarding food additives and supplements, and the necessity of food planning for such emergencies as the atomic bombing.

Food fads and quackery were becoming more evident at this time. The 1952 Institute recommended better protection for consumers through federal regulation for food additives. They asked for strict regulations on emulsifiers, stabilizers, moisteners, preservatives, fumigants, anti-oxidants. antibiotics, and other ingredients added to food in the production, processing, and packing stages.

National Nutrition Education Conference, 1957. The increased strength of the importance of education to the problems of nutrition was evidenced by the fact that education was added to the title of the National Nutrition Education Conference, 1957. The over-all theme of this Conference was presenting nutrition facts to stimulate and motivate people toward improving their food habits (Eppright, Pattison, and Barbour, 1967). The 1955 Household Food Consumption Survey was examined at this 1957 Conference. The Survey demonstrated that improvements due to enrichment of foods, improved economic conditions, new developments in food technology and marketing, and the effect of nutrition education had improved diets in the nutrients, calcium, ascorbic acid, vitamin A, thiamine, and riboflavin only before 1948 when another extensive food consumption survey had been conducted. The 1955 data showed few improvements in nutrient levels over those of 1948. From 1948 to 1955 the Conference observed that complacency toward proper nutrition was demonstrated by some of the people of the United States.

One of the most significant conclusions of the Conference was that the education specialists and anthropologists may have an influence on

food habits in collaborating for nutrition education (Eppright, Pattison, and Barbour, 1967, p. 233).

Nutrition Education Conference, 1962. Nutrition needs of children was the theme of the Nutrition Education Conference, 1962, which considered the evaluation of children's diets, problems related to obesity, dental health, and the social and emotional aspects of their food habits. Leverton said that overweight children and young people need to be taught how to balance their food intake with energy needs; they need purposeful physical activity; and they need to be taught the importance of the kinds of carbohydrate in the diet (USDA, Misc. Pub. No. 913, 1962, p. 8-11).

Attention was called by Lantis (Pattison, Eppright, Barbour, 1962) to the cultural influences on children's food habits. Lantis mentioned that vending machines and the socialization of eating along with attractive packaging of many foods made it necessary for the child to make decisions. Therefore, it was vital to teach the child practical knowledge for him to make wise choices.

Changes in Diets of Households, 1955-1965, Survey. Adelson (1968) analyzed the Survey and stated that in the past decade in the United States, despite higher income and a great abundance of food, there has been a decrease in adequate dietary levels for household food consumption.

Twenty-five per cent of the diets in the 1965 survey provided less than two-thirds of the allowance for one or more of the nutrients studied. This level would be considered inadequate over an extended period of time. These poor diets were found among the affluent as well as the poor. More diets were graded poor in 1965 than in 1955.

The implications of the survey for nutrition education indicated

the things that home economists can do to help families. These were to educate individuals to help them choose wisely in restaurants, snack bars, and the school lunchroom; to use mass media and other means to reach everyone; to use new, imaginative approaches; to emphasize the Basic Four Food Groups with less attention being given to the meat group; and to help the low-income families with needed special consumer education and knowledge of how to make use of existing programs which affect their nutritional status. Finally, nutrition programs to meet the needs of all age groups were needed (Adelson, 1968, pp. 448-455).

Nutrition Education Conference, 1967. The membership of the Conference recognized that nutrition knowledge was available but too many people were not using it. Therefore, the Conference had the goals of finding factors which would involve a change in eating habits, determining how practices and food habits are interrelated, and indicating behavioral changes which would be desireable to make. Welsh (1968) stated at the 1967 Conference that the public schools lacked a graded curriculum in nutrition through the public school years. Furthermore, Stiebeling (1959) expressed the need of teachers to acquire nutrition information and innovative teaching methods for nutrition education.

Leverton explained the concepts for nutrition education which were formulated by the Interagency Committee in Nutrition Education at the 1967 Conference. The concepts were based on the importance of decisions about food that would promote a desirable level of health and growth. The concepts were:

1. Nutrition is the food you eat and how the body uses it.

2. We eat food to live, to grow, to keep healthy and well, and to get energy for work and play.

3. Food is made up of different nutrients needed for growth and health. All nutrients needed by the body are available through food. Many kinds and combinations of food can lead to a well-balanced diet. No food, by itself, has all the nutrients needed for full growth and health. Each nutrient has specific uses in the body when teamed with other nutrients.

4. All persons, throughout life, have need for the same nutrients, but in varying amounts. The amounts of nutrients needed are influenced by age, sex, size activity, and state of health. Suggestions for the kinds and amounts of food, its safety, appearance, and taste.

5. Handling means everything that happens to food while it is being grown, processed, stored, and prepared for eating (USDA Misc. Publ., p. 28).

The use of the nutrition concepts have proven to be beneficial for in-service nutrition education of nurses, teachers, parent groups, extension groups, and health and welfare workers.

National Nutrition Survey, 1967. In reviewing the 1967 National Nutrition Survey, Schaefer (1968) stated that Congress directed the Department of Health, Education, and Welfare in the fall of 1967 to conduct a survey to identify the evidence, magnitude, and location of malnutrition and related health problems in the United States. The 1967 Survey data did not provide answers on the prevalence of malnutrition among all people. However, action programs in nutrition education were implemented in Louisiana and Texas as a result of the 1967 Survey.

White House Conference on Food, Nutrition and Health, December 2,

3, 4, 1969. The section of the Conference which dealt primarily with nutrition education, Panel IV-1 (p. 147, ff.), was brought into focus for this review. The basic issue for consideration by the Panel was the urgent need for the creation of innovative approaches combined with proven methods of nutrition education. Curriculum in nutrition education centers on the fact that every person should be able to make wise decisions on his choices of food and retain his health as well as his individuality. His decisions should be based on his understanding of his needs as determined by:

(1) his physiological state and physical activities,

(2) his knowledge of nutrient composition of plant, animal, and formulated foods in his environment,

(3) his ability to distinguish between truth and distortion in relation to foods, nutrition and health, and

(4) his ability to use his available resources whatever they may be.

> As future citizens in a democracy, children must acquire knowledge and social consciousness which will enable them to participate intelligently in the adoption of public policy affecting the nutrition of the people (White House Conference Report, 1970, pp. 150-151).

The following recommendations were then made by Panel IV in relation to nutrition teaching and nutrition programs:

> That a comprehensive and sequential program of nutrition education be included as an integral part of the curriculum of every school in the United States and its territories.
>
> That a proposed conceptual framework be used as a resource in developing new curriculum and evaluating existing curriculum.
>
> That a national interdisciplinary study group be appointed to give further study of the proposed conceptual framework, to assess the current status of nutrition education in

> the schools, to prepare curriculum guidelines and resource materials for use by state and educational agencies, and to suggest pilot programs to test, evaluate and revise materials (White House Report, 1969, p. 151).

National Follow-Up Session of the White House Conference on Food, Nutrition and Health, 1971. The Session considered some of the changes which had been made since 1969. The number of food stamp recipients had gone from 2 million to nearly 10 million; the monthly family allotment had increased by 50 percent, and the price had decreased--to nothing for those in extreme poverty since the 1969 Conference. The number of children receiving free school lunches had nearly doubled to about six million. Every state of the union had had its own conference on hunger and nutrition and was developing local programs in addition to the federal effort.

The University of Colorado Medical Center had admitted seven children with kwashiorkor, and dozens with serious cases of marasmus since the period of the 1969 White House Conference (Mayer, 1971). These diseases are acute forms of protein-calorie deficiency. Pediatricians have demonstrated that these children who appeared to recover never recovered normal growth and remained permanently retarded mentally. The migrant families in Colorado have a poor health and nutrition record. They were not eligible for food stamps while traveling. They were not eligible for unemployment compensation. Educators can be instrumental in stopping this national scandal. Nutrition aides supply one area of need to alleviate these problems.

The White House Follow-Up Conference, 1971, was also concerned with consumer problems. The percentage of processed food in our diet has jumped from 10 percent in 1941 to about 50 percent in 1971. The housewife does not buy potatoes and flour any more but she buys frozen French

fried potatoes or a ready-made frozen cake (Mayer, 1971). This decreases the women's work, but it does eliminate the savings in price. It makes food subject to great increases in labor costs which drives industry to look for cheaper materials, such as replacement of expensive meat by inexpensive textured vegetable protein. However, textured vegetable protein may be constituted so that it has nearly the identical nutrients of animal protein.

Mayer (1971) stated that research effort needs to be done regarding trace minerals and "secondary vitamin requirements and a more rapid procedure to establish tentative recommended allowances for these nutrients." One percent of the nation's food bill should be directed to research. He also stressed the need to educate the public to the continued value of the primary foods, the basic four. Finally, Mayer, emphasized necessary monitoring for safety and that the nutritional value of foods involves investigation of involuntary additives, such as pollutants, retesting of voluntary additives, better labeling, and clearer, more understandable standards (Russell, 1971, p. 176).

Oklahoma Food Habits Survey, 1970. The importance of determining the adequacy of food intake and food habits of school children in Oklahoma was realized by the Oklahoma School Lunch Division. Thus, a study and a survey of these habits was begun in 1967. The Home Economics Division of the Department of Vocational and Technical Education and several colleges worked with the School Lunch Division in making the survey of 10,000 school children.

The Oklahoma Survey was planned to determine the current nutritional status of a large sample of school children in large and small communities of the state and at several income levels. Analysis of the food in-

take was based on nutrients commonly supplied by the Basic Four Food Groups as recommended by the National Research Council (1964). The report of the Survey included the developments observed in the two years following the survey and a comparison of the Oklahoma statistics with the newest National Survey, 1967.

In comparing the statistics for males and females and averaging all age levels, the girls were a little ahead of the number of those having an adequate diet for the day except in iron. Two of every 10 boys and girls needed additional iron. More girls than boys were overweight and more boys than girls were underweight. Four out of 10, both boys and girls, needed additional calcium, vitamin A and ascorbic acid in their diets.

Survey results showed that the five and six year-olds and the 16 to 18 year-old groups had the lowest percentages having an adequate intake in all nutrients. The seven to nine year-olds showed the highest percentages of adequate diets. The number having adequate diets of the 10 through 18 year-olds was lower as the age increased. The 16 to 18 year group had the least participation in school lunch, as well as a lower percentage of adequate diets. The results in comparing the income levels indicated a need for nutrition education at all income levels, according to the project personnel. This Survey demonstrated that in all of the specific nutrients, except iron, a larger percentage of girls than boys had sufficient amounts of the recommended daily allowance in their daily food intake. In other national and regional surveys there was an indication that teenage girls were the most poorly fed of all students. This was apparently not true in Oklahoma. The personnel involved with this Survey stated that this indication may show improvement of dietary

practices as a result of nutrition education programs and an adequate school lunch program because nearly all of the schools surveyed had provided a school lunch program for a number of years.

Nutrition Education Programs In Elementary Schools

In considering approaches for learning the educators involved in planning curriculum for boys and girls must have an understanding of the environment of the child. The influence of the home on the child was among the underlying factors of nutrition education in the elementary school. When the child entered school, the home had been the chief pattern for his habits.

In the North Central States research study of the diet of pre-school children (Eppright, Fox, Fryer, Lamkin, and Vivian, 1970), it was implied that mothers using permissive child-rearing practices resulted in an inadequate diet for the child. The poorest diets were demonstrated by children whose mothers had a relatively low level of nutrition knowledge and unfavorable attitudes toward meal planning (Eppright, Fox, Fryer, Lamkin, and Vivian, 1970).

A nutritional study of children from birth to six years of age was conducted in twelve states in the central region of the United States for a period of twelve years (Vivian, Eppright, Fox, Fryer, Lamkin, 1970). The findings of the study indicated that fathers also need to set the example of proper food choices. Dr. Vivian concluded at a Nutrition Conference, 1971, of the inter-disciplinary agencies at Oklahoma City held by the State Department of Vocational and Technical Education, Home Economics Division, that this finding emphasized the

need for nutrition education for boys as well as girls (Vivian, 1971). Furthermore, parents and school personnel need to implement positive patterns of adequate food selection as early as possible in the child's life (Hill, 1969; Venable, 1957; Hicks, 1970).

Ullrich (1971) stated that the nutrition educator needed a variety of approaches to interpret nutrition information and he must also strive to motivate individuals to practice proper nutrition. In addition to knowledge, then, the educator necessarily must be involved in the understanding of economics, human relationships, and communication. Elementary school teachers in the Greater Cleveland, Ohio area have been integrating nutrition teaching for 18 years into many subjects already being taught in the curriculum of the elementary school. The program started with writing of curriculum guides in outline form which illustrated possibilities of nutrition teaching in social studies, mathematics, and art. This teaching was in addition to the basic facts about reasons for needed food. Since the Cleveland consultant's job for the area was so big in scope more detailed resource materials for teachers were prepared. An example of the type of suggestions that were given showing how Lincoln's birthday could be used in relation to food and nutrition will be found in Appendix A of this study. Such resource materials in nutrition education stimulate the elementary teacher's creative thinking about various areas of the curriculum in which nutrition teaching may be integrated. The Cleveland teachers stated that learning about foods can be fun for the teachers as well as children (Whipple, Stifel, Brennand, 1970).

Much of the success in nutrition education depends on the individual teacher and the degree that he incorporates knowledge with modern

principles of learning (Wiley, 1968). The home economics teacher can present the scope of understandings and learning experiences from which the classroom teacher can choose the most effective ones for his particular situation. Nutrition concepts need to evolve from new information about nutrition involving changing biological, social, and economic factors affecting food selection. Kilander, (1961, pp. 99-101) noted nutrition educator, suggested approaches for kindergarten through grade six.

Extensive work in children's nutrition done by Martin (1963) points out that interests of children are the key to the approach. Children's interests in the lower grades center around their immediate environment, such as helping mother cook, playing house, playing with pets, and going to the market. The social studies sequence often followed in these grades was: living in the home and school; living in the neighborhood; living in the community. The classroom teacher may design ways of incorporating nutrition into the language art, mathematics, music and science also.

Evaluation of the progress in nutrition education may be made by the teacher checking the parents' interest. One indication of interest would be shown by their volunteering for service when needed. The teacher may also be able to perceive the diet of the child by his alertness in the school room (Martin, 1954).

Martin emphasized that "live" materials should be included in the teaching at the upper elementary grade level. Examples of this type of aid would be the use of animals for feeding experiments; the growing of real food, harvesting, and preparing by children. Films, filmstrips, pictures, food models, and posters should be carefully introduced and

discussed for the most effective learning.

Carrier used nutrition concepts and planned techniques in which his fourth and fifth grade students are required "to do" things. For example, a dentist came to school to discuss tooth decay and the importance of an adequate diet in tooth development. As a learning experience, the students drew pictures of different characters, monsters and Dracula type, who neglected their teeth. Another tool to facilitate learning is composing songs and creating games which are both educational and entertaining for the nutrition education curriculum (Carrier, 1971, p. 13).

The evaluation of food habits for children at the upper elementary grade level should include self-evaluation. A self-analysis of dietary habits and attitudes may indicate a positive or negative interest in the improvement of the diet. For example, at the snack bar or vending machine the child might choose to purchase a carton of milk instead of a soft drink. The boys and girls might do independent and cooperative activities which are self-motivated in the school and home as evicences of learning which can result from nutrition education (Martin, 1963).

The need for nutrition education has been felt so keenly that a number of states are developing legislation designed to aid the introduction of nutrition teaching in their school systems. The state of New York enacted legislation of this type which went into effect at the beginning of the 1970-71 school year. Cornell University developed curriculum guides and a program of teacher training in nutrition for grades kindergarten through 12 for the New York State Department of Education. Three videotape programs, produced under a Nutrition Foundation grant, and the teacher guides provide background information for

teachers and illustrate learning experiences in nutrition at various grade levels (Sipple, 1971, p. 20).

In developing the curriculum guides for nutrition education for grade levels kindergarten through senior high school for New York, Sinacore and Harrison (1971) relied on the conceptual definition of health: "A quality of life involving dynamic interaction and interdependence among the individual's physical well being, his mental and emotional reactions, and the social complex in which he exists." Nutrition concepts were developed following this concept of health. Then learning experiences which could lead to behavioral goals were developed. At the primary level, the learning experiences sought to help the child develop positive attitudes toward food and eating; to accept a variety of foods; to recognize differences in how and what people eat; and to begin to understand the relationship of food to health and growth.

In grades four through six, the curriculum was developed to help the student understand detailed relationships among food, health and growth; to understand and apply selection of food to nutritional needs; to develop an appreciation of food as man's physical and sociocultural environment (Sinacore and Harrison, 1971, pp. 2287, 2288). The American Dietetic Association was developing nutrition education materials such as basic curriculum guide materials for kindergarten through grade 12 (Sipple, 1971, pp. 20, 21).

Martin, nutrition education authority, revised her book, Nutrition in Action (1971) to fulfill a vital goal: appreciation of the importance of adequate nutrition by professional persons outside the field of nutrition. The book is designed to inform and stimulate. It serves

as a guide and up-to-date text for reference book for the elementary teacher when designing a nutrition education curriculum. It may be used with Nutrition Education in Action (Martin, 1963) which shows how nutrition education fits naturally into various areas of the elementary curriculum. Actual classroom activities for elementary grades which may help the student improve food habits and methods of measuring the improved health of children in behavioral terms are given in the book.

Vannier (1963) gave valuable suggestions for correlation and integration of nutrition education in the elementary curriculum in social studies, science, communicative arts, arithmetic, dramatic and art activities, and physical education.

Another aspect of nutrition education was explained at the National Nutrition Conference, 1971 by Dobbins, a nutrition coordinator for the School Lunch Division in the Oklahoma Department of Education. In the nutrition education program which was being conducted in south central Oklahoma students who were members of the Future Homemaker's of America chapter helped with the program in the elementary school by preparing presentations for the elementary students. Dobbins stated that the rewards were two-fold because the experience enhanced the regular classroom work of the Future Homemaker and proved most inspiring to the elementary students (Overholt, 1972, p. 37).

Many writers emphasize that learning opportunities should be chosen which would be suitable to individual differences arising from cultural, economic, and personal and family conditions. Therefore, to facilitate selection of the types of behavioral objectives for the most effective learning experiences in nutrition education, an understanding is necessary of the psychological aspects and developmental tasks of school age

children as shown by Havighurst (1961, pp. 15-28). The elementary curriculum today emphasizes the needs of the individual and ways of meeting those needs. The concept which the child forms of himself in a world that is exciting to live in is basic to his successful personality development during adolescence. Fleming (1964), noted elementary educator, explained this concept in these words:

> Self understanding is derived from an awareness of self as a part of the world of people and the world of things. It derives from a growing ability to identify one's self in this world by a process of differentiation as we get to know this world in its myriad aspects. It comes from direct confrontation with the world as we differentiate and attempt to find out what the rest of the world is and what we are. Openness to the world is crucial for self understanding. Only as one moves out into the world to explore can the self be revealed (p. 108).

As educators apply the self-image concept to education, every boy and girl must be given the opportunity to feel his worth as being someone and having value as an individual. Research has shown that a good self-image assists in motivation for learning in all areas of education.

The Oklahoma Food Habits Survey, 1971, implied that an intense effort should be made to include a course in foods and nutrition as a requirement for certification of elementary teachers. An unpublished thesis suggested that some emphasis in college curriculum should be focused on nutrition education for elementary teachers (Kopel, 1970, p. 104). The White House Conference on Food, Nutrition and Health, 1969 recommended that state departments of education should encourage colleges and universitites to include nutrition units in courses for elementary teachers and other professions (p. 155).

A device which could be used to improve the nutrition education available in school systems was an organized nutrition education workshop. Among the workshops which have been held in recent years was one

held in the summer of 1970 at the Tuskegee Institute in Alabama (Sipple, 1971, p. 20). Reports indicated that the workshop was successful. It served as an effective means of developing improved methods and materials as well as to provide a means for the introduction of nutrition education into the school curricula. Similar results were observed by this researcher from examples cited in the "Creative Teaching of Nutrition" workshop conducted at Oklahoma State University in the summer of 1971.

A concentrated effort by the researcher in working with parents of the elementary school children and some classroom teachers during the year previous to the workshop made the researcher confident that nutrition education in the elementary curriculum can be promoted with an in-service nutrition education workshop for the elementary teachers. The ability of the professional worker in the nutrition education field to channel individuals to practice desirable food habits and attitudes has significant educational implications (Marshall, 1971). Such literature as the following lend support to this idea. The recommendations of the White House Conference, 1969, recognized the need for long-range programs in nutrition education as one of the two main types of action (Livingston, 1971, p. 26). Traditional means of preparatory nutrition instruction for classroom teachers must be revamped and innovative programs need to be developed (Petersen and Kies, 1972).

The future of home economists depends on our response with appropriate innovativeness to the current needs of mankind (Tacionis, 1972). The potential of nutrition education in eradicating local health problems due to malnutrition is unlimited (Schubert, 1970, p. 11).

Concepts for Nutrition Education Workshops

The researcher chose the conceptual approach to nutrition education. Current literature, such as the AHEA Home Economics--New Directions supported the idea that the conceptual approach is effective as a base in curriculum development. Again, the group involved in curriculum planning at the first conference of the Home Economics Education Branch of the United States Office of Education agreed that basic concepts and generalizations would provide structure for subject-matter areas (Amidon, 1967, p. 19). The value of developing a curriculum through unifying concepts would give the curriculum flexibility, allow for adjustments to fit the local situation, provide a basis for sequential learning and make the evaluation process easier (Amidon, 1967, p. 19).

The advantage of conceptual teaching emphasized by Brown (1970, pp. 3, 4, 5) was that facts which are based on research produced confidence and interest. Individuals are motivated to make behavioral changes in their own food habits since interest in nutrition develops more adequately when food and nutrition concepts are expanded. Concepts provide a method for a built-in evaluation. The teacher determines whether the material to be taught will furnish students with information referred to in the concept.

The conceptual approach in nutrition was used in a nutrition education program in which a study was done in selected school districts in Los Angeles-Orange County. The material used in the study was the teacher-aid booklet, Big Ideas in Nutrition Education--and How to Teach Them. It was compiled by educators, communicators and nutritionists of the Dairy Council of California (Lovett, Barker, Marcus, 1970, Supplement). The model of instruction for this program consisted of behavioral

objectives. This instructional model consists of a pre-test or diagnosis of the student performance followed by an appropriate learning opportunity. Then, the student's performance was evaluated to demonstrate if the student needed to repeat the learning or go on to a new activity.

The effectiveness of the "Big Ideas" was determined by analyzing data collected from a selected group of school districts in the Los Angeles-Orange County area. The analysis demonstrated that students taught nutrition by trained teachers using the "Big Ideas" showed marked improvement over classes taught the "Big Ideas" with teachers who were not trained in "Big Ideas" or with general objectives taken from state texts alone (National Dairy Council with Dairy Council of California, 1970, p. 82).

The researcher examined Jolley's (1970) framework for setting up a nutrition education workshop. Jolley pointed out steps in using the conceptual approach for organization of a unit for teaching (Jolley, 1970).

Another example of the use of concepts and behavioral objective learning units in nutrition education was done for grades four to six at Omaha, Nebraska. The units were prepared by a nutrition expert and an individual with education experience. The concepts for each grade level were sequenced. Von Housen (1971), nutritionist at Omaha, states, "Nutrition can be exciting and fun, but the students must be involved" (Von Housen, 1971, p. 63).

Thus, the review of research on nutrition education indicates that effective approaches in school programs involving concepts were fundamental for focus on the individual. The purpose of nutrition education is to influence attitudes and anticipated behavior toward food. The

need for nutrition education as stated by the panel on education at the White House Conference along with the many researchers quoted in the review of this study emphasize the importance of a comprehensive nutrition education program. The impact of the need has spiraled each month since the Conference. Many professional periodicals evidenced that. Among the myriad of researchers, Martin (1971), and Whipple, Stifel, and Brennand (1970) served as guides in the identification of the following concepts for the educator of the elementary school child in nutrition education:

(1) Good foods in adequate amounts are needed throughout life.

(2) Adequate amounts should be chosen from the Four Food Groups.

(3) Food habits must include a willingness to eat good food. Teachers exert a strong influence on the attitudes and habits of children, including those pertaining to food selection and eating.

(4) The food which children eat involves many people and depends on many factors.

The implications of these concepts formed the criteria for the four concepts selected from the seven concepts of the White House Conference on Food, Nutrition and Health, 1969. The concepts selected were:

1. Nutrition is a process by which food and other substances eaten become you. The food we eat enables us to live, to grow, to keep healthy and well, and to get energy for work and play.

2. Food is made up of certain chemical substances that work together and interact with body chemicals to serve the needs of the body.
   (a) Each nutrient has specific uses in the body.

4. All persons, throughout life, have need for about the same nutrients, but in varying amounts.
   (a) The amounts needed are influenced by age, sex, size, activity, specific conditions of growth, and

state of health, altered somewhat by environmental stress.
(b) Suggestions for kinds and needed amounts of nutrients are made by scientists who continuously revise the suggestions in the light of the findings of new research.

5. Food use relates to the cultural, social, economic, and psychological aspects of living as well as to the physiological.
(a) Food is culturally defined.
(b) Food can be chosen so as to fulfill physiological needs and at the same time satisfy social, cultural, and psychological wants (151).

Summary

The literature reviewed in this chapter reaffirms the need of the secondary home economics teacher for in-service education in order that she become up to date in nutrition education and that she may promote nutrition education in the elementary school. The review in this chapter gave scientific evidence of the effects of nutrition on the development of animals and humans. A resume of the National Nutrition Education conferences and surveys provided information regarding the progress of nutrition education. Examples of various curricula which integrated nutrition education into the entire curriculum of the elementary school were considered. The use of a conceptual framework for nutrition education was discussed as an important factor in effective curriculum for the elementary school. Using this basis, an in-service nutrition education workshop for elementary teachers was planned by the researcher. The exact procedure for this workshop will be described in the following chapters.

CHAPTER III

PROCEDURE AND METHODS

This study was conducted to promote the emphasis on nutrition education in various areas of the curriculum in the elementary schools in Blackwell, Oklahoma. The first steps in the procedure were: (1) a review of basic nutrition information and investigation of innovative teaching techniques which the elementary teacher could use for the integration of nutrition education in the elementary school curriculum, and (2) a personal interview with teachers in the Blackwell elementary schools to determine the needs of the elementary school teacher for nutrition information and teaching techniques for integrating nutrition education in the elementary school curriculum. These steps provided a basis for (3) formation of objectives for the nutrition education workshop and then (4) a nutrition education workshop for the elementary teachers was conducted. Finally (5) an evaluation of the nutrition education workshop was made. The selection of the teachers involved in the interviews, the development of the interview questionnaire, and the analysis of this data appear in this chapter.

Selection of Teachers Interviewed

The population for this study was identified as the elementary school teachers in Blackwell, Oklahoma. The superintendent of Blackwell City Schools gave his approval and permission for a nutrition education

workshop to be conducted during in-service week prior to the fall school term 1971-72 for the elementary school teachers. The principal of Blackwell High School also gave his permission and approval for the researcher to conduct such a workshop. Twenty elementary teachers representing approximately one-half of the total number of elementary teachers in Blackwell were selected for the interviews. The selection was done by random sample by a co-worker of the researcher at Blackwell High School. This group represented a sample of the teachers for whom the nutrition education workshop was to be conducted. The teachers were assigned a respondent number for recording the data so that answers would remain anonymous. The researcher contacted the teachers whose names had been selected either by telephone or personally. The purpose and scope of the interviews and the approximate length of time necessary was explained. All of the teachers were willing to cooperate with the researcher and a convenient time was arranged for the interviews to be held.

Development of Nutrition Education Questionnaire

Methods of collecting data which would be gathered on the nutrition questionnaire were studied, and the interview method was considered. The researcher made a study of the types of interviews and the characteristics of a good interviewer. Kahn and Cannell (1959, p. 16) refer to the interview as a tool for data-gathering when the verbal interaction is focused on specific content area. Hall (1970) states that one advantage of the interview as a research instrument is that a person may be willing to spend more time giving information in the direct personal interview than when asked to complete a written questionnaire. Furthermore, an interview may furnish more accurate information than a written

questionnaire because the interviewer may clarify the question, if necessary. The interviewer should not waste time talking unnecessarily and neither should he reveal opinions or attitudes of his own which may cause the interview to become biased (Burchinal and Hawkes, 1957, p. 168). The open and closed question structure for the interview question were investigated (Good, 1964). The open question permits much freedom on the part of the respondent to answer freely the problems under study, whereas, the closed question focuses on specific information. The two types of questions would enable the investigator both to elicit responses as to the degree of knowledge and, also, to secure evidence of personal involvement in the experience of nutrition education in the elementary curriculum. Hence, both structures were used for the interview questionnaire by the researcher in this study (Appendix B).

The interview questionnaire attempted to discover how much nutrition education was integrated in the elementary curriculum during the year 1970-71, to determine the extent of the nutrition knowledge of the elementary teachers, and to solicit suggestions for nutrition education in the elementary school curriculum which should be included in the workshop. The framework for the workshop, which consisted of the four concepts from the "Conceptual Framework for Nutrition Education in the Schools" of the White House Conference on Food, Nutrition and Health, 1969 Chapter II, was analyzed. These concepts constituted the basis for the framework of the interview questions which were developed for the interviews with the elementary school teachers. The concepts with the corresponding question which was formulated for the nutrition education interview questionnaire appear in Appendix B of this study.

The interview questionnaire was pre-tested with four former elemen-

tary school teachers and revised. Appropriate revisions were made in order to make all questions impersonal, to simplify the content, and to shorten the interview questionnaire. A second revision of the instrument was done after testing it with four teachers in the Blackwell elementary schools who were going to be in the nutrition education workshop for the elementary teachers. Revisions were made to further shorten the questionnaire, to change the sequence of questions, and to clarify phraseology. Then, the interviews were conducted using the revised interview questionnaire during May, 1971.

An appropriate introduction was made by the researcher during the interview explaining the interviewee's involvement in planning a beneficial workshop. Two transition questions pertaining to the school's responsibility in nutrition education and the areas of nutrition education which the interviewee had included this year were asked. Then the questions were asked which had been formulated by associating nutrition education in the elementary curriculum with the chosen White House concepts. Finally, the interviewee's were asked to state what they would like to gain from a nutrition education workshop. The researcher had also furnished the elementary teachers with resource materials during the school year before the workshop. Therefore, responses as to the manner in which these materials had been utilized would facilitate the planning of resource materials for the workshop. At the close of each interview the researcher expressed appreciation for the teacher's time and cooperation.

Analysis of Interview Data

The first introductory question asked, "What is the school's re-

sponsibility in teaching the elementary school child nutrition and proper food habits?" Seventeen of the 20 teachers and principals stated that the school's responsibility is extremely important. They indicated that methods of teaching nutrition knowledge which motivate the child to practice good eating habits are needed. Two of the interviewees said that nutrition education would not help the child to eat the proper diet and that it was the responsibility of the parents. In keeping with this thinking another teacher said that the elementary school has enough to do without nutrition education. The researcher believes that the majority of the elementary school teachers who were sampled felt that they did have a key role in meeting the challenge of educating children in nutritional health.

In answer to transition question B, "In which areas of the curriculum have you used nutrition education this year?", 16 of the 20 teachers stated that they had incorporated it mainly in the teaching of health. The nutrition unit is listed as one chapter in the Laidlaw health textbooks which are used in the Blackwell elementary schools. Three of these same teachers stated that they made application of proper nutrition to the school lunch menu and tried to motivate the children to eat the different foods on the menu throughout the year. The researcher believed that this amount of nutrition education did not give it the strength that was needed and that these efforts must be expanded in the future.

The questionnaire items 1 through 15 were based on the White House Conference concepts for nutrition education. The most important data were the 19 suggestions to question 14 dealing with information the respondents would like to gain from a nutrition education workshop. The suggestions may be categorized as follows:

(1) Motivation of elementary school children for proper food habits and attitudes;

(2) Interesting fun methods for teaching nutrition including plays, puppets, and bulletin board ideas which the elementary children can construct.

The researcher felt challenged to include both of these suggestions in the workshop.

When responses to questions 1 through 13 were tabulated regarding knowledge of concepts for nutrition education there were 97 partially correct, 10 incorrect, and 111 did not answer responses, totalling to 218, (Table I). The prevailing tendency in response to functions of specific nutrients was that the answers were limited to general answers or a meager amount of information. This indicated that the teachers could benefit from teaching of specific nutrients and their functions in the workshop.

The analysis of questions which reveal the least knowledge by the respondents will be discussed here. Not one of the interviewees could tell the difference between a complete and an incomplete protein in answer to interview question 4. No one could correctly state the number or size serving of the Basic Four Food Groups for various individuals on interview question 2 and the 8 responses which were partially correct merely stated that it was "listed in the book". None of the interviewees could name a nutrient which was needed to promote mental capability, in answer to question 8. Question 10 asked the teachers to name some food products which are enriched. Three-fourths of the teachers partially answered question 10 stating one or two nutrients for the enrichment of food products. However, the researcher did not feel that this data rep-

TABLE I

RESPONSES RECEIVED ON INTERVIEW QUESTIONNAIRE

QUESTIONS REGARDING NUTRITIONAL KNOWLEDGE

Question*	Correct	Partially Correct	Incorrect	Did Not Answer	Total Responses
1.	14	2	0	4	20
2.	0	8	2	10	20
3.a.	0	15	0	5	20
b.	0	14	0	6	20
c.	16	0	0	4	20
d.	0	15	0	5	20
4.	0	0	0	20	20
5.	14	0	0	6	20
6.	14	0	1	5	20
7.	10	5	0	5	20
8.	0	6	0	14	20
9.	15	0	0	5	20
10.	0	15	0	5	20
11.	0	16	0	4	20
12.	3	1	7	9	20
13.	16	0	0	4	20
Total	102	97	10	111	320

*Questions appear in Appendix B.

resented sufficient knowledge of enriched products considering the present focus on these elements. Question 3a, b, c, and d was asked to find out information on the relation of the Basic Four Food Groups to body functions. The only food group which 16 teachers knew related to the meat group. However, nearly three-fourths of the teachers could give very general information in regard to body functions pertaining to milk, bread and cereal, and the fruit-vegetable group. The general answers were "to make you grow" or "to give you energy". Therefore, the concept that each nutrient has specific uses in the body was included in the workshop. Even though 14 of the 20 teachers answered question 6 associating the use of vitamin C in the body with colds, the additional nutritional knowledge of the functions of vitamin C seemed to need emphasis. The 16 partially correct, varied responses to question 11 indicated the teachers felt that energy foods, protein, iron, vitamins, and a balanced diet were needed for boys and girls participating in active sports. With this variety of partially correct responses it seemed pertinent to the researcher to include learnings in the workshop in relation to nutrients needed for strenuous activity of boys and girls.

Sufficient knowledge was demonstrated by the teacher's responses to questions 9, 1, 7, 12, and 5 that the researcher did not consider them a major concern for time during the nutrition education workshop. For example, three-fourths of the teachers in answering question 9 referred correctly to the affect of good nutrition on the individual regardless of heredity factors. Fourteen of the twenty knew the food guide for individuals. Fourteen of the 20 teachers knew that iron is a blood builder, in answer to question 5. Three-fourths of the teachers answered question 7 correctly or partially correct which was concerned

with the basis for daily food selection. Finally, question 12 on the interview questionnaire asked, "What cultural patterns are you influenced by in your selection of food?". Since only three identified an individual cultural pattern the researcher concluded that this is not an important factor in the particular area of the southwest where Blackwell, Oklahoma, is located.

It was significant to note that 16 teachers were aware that children should have nutritious snacks of milk, fruit, and non-sweet food as evidenced in their responses to question 13. The teachers requested that motivational learning experiences for nutritious snacks be included in the workshop.

Thirteen respondents, in answering question 15, said that they had used free materials from the National Dairy Council as the chief resources which were used during the 1970-71 school year. Some materials had been purchased from the National Dairy Council as a result of the work the researcher was doing in nutrition education for the elementary school during that period. The responses received on interview questionnaire questions 1 through 13 are tabulated in Table I on page 43 of this chapter.

Summary

The analysis of the answers to questions 1 through 13 revealed that the majority of the teachers knew that regardless of heredity factors good nutrition is still important; the Basic Four Food Groups serve as a guide for daily food needs; your individual needs determine the amount and type of food which you include in your diet each day; nutritious snacks consist of milk, fruit, and non-sweet food; and that iron is a

blood builder.

The analysis demonstrated that teachers did not know what a complete and incomplete protein was; the size or number of servings of the Basic Four Food Groups for various individuals; and which nutrients may promote mental capability. The majority of the teachers gave partial responses to questions involving the enrichment of food products; the relation of the Basic Four Food Groups to body functions; the relation to nutrients needed for strenuous activity of boys and girls. The use of vitamin C by the body was known only so far as its' relation to colds. After analyzing the interview nutrition on education questionnaire tabulation, behavioral objectives were formulated for an effective workshop.

CHAPTER IV

NUTRITION EDUCATION WORKSHOP

This chapter is concerned with a description of the presentation of the workshop in order to promote nutrition education in various areas of the Blackwell elementary school curriculum. Thus, the third objective of the study will be presented, which was to increase understanding of the elementary teacher of nutrition information and effective methods for integration of nutrition education through a workshop for the elementary teachers in Blackwell, Oklahoma.

Concepts and Behavioral Objectives

The analysis of the interview nutrition education questionnaire signified that four concepts from the White House "Conceptual Framework for Nutrition Education in Schools" for the formulation of the questionnaire were not sufficiently understood and additional ideas for learning experiences were requested (1., 2. (a), 4. (a), (b), and 5. (c)). Therefore, objectives were developed so that these concepts would be understood.

The concepts for the workshop using the objectives were rearranged in sequence according to the format of the book, Nutrition Education in Action (Martin, 1963). This was done because this book had been placed in the elementary schools in Blackwell as a result of consultant work done during the 1970-71 school year by the researcher. The researcher planned to explain the value of Martin's nutrition work at the workshop

and encouraged the elementary teachers to use the books in augmenting their lesson plans. The objectives which follow were necessarily limited to what could be accomplished during the seven hours which were allocated for the in-service workshop. The concepts from the White House conceptual framework, the interview questions which were not sufficiently known or on which information was requested and the behavioral objectives for the workshop appear on the chart on pages 49 and 50.

Explanation of First Day of the Workshop

Dr. George Rowley, superintendent of Blackwell City Schools, spoke of the special emphasis that was to be given nutrition education in the curriculum of the Blackwell elementary school during his talk to the Blackwell Teachers Organization breakfast at the beginning of In-Service Week, 1971.

Mr. Bill Hicks, curriculum director, was introduced by the researcher at the beginning of the nutrition education workshop and addressed the group of elementary teachers on the importance of nutrition to learning, health, and the happiness of the elementary school child. He said that even though the child's food habits and state of nutrition were primarily the responsibility of the parents, due to the fact that there were many malnourished children, the school would have to do what they could to improve the nutritional status of the children. The food habits and attitudes of the children may be changed by the attitude of the elementary teacher toward nutrition and the effective nutrition teaching that she does. Mr. Hicks stressed the fact that the educator finds it difficult to teach as long as the child is malnourished. Therefore, he challenged the teachers to include nutrition education in

CONCEPTS AND QUESTIONS WITH WHICH BEHAVIORAL OBJECTIVES FOR WORKSHOP WERE PLANNED

Concept from White House Conceptual Framework	Interview Questions Not Known	Behavioral Objective
2. Food is made up of certain chemical substances that work together and interact with body chemicals to serve the needs of the body. (b) For the healthful individual the nutrients needed by the body are usually available through food.	3. (a) What does the milk group do for the body? (b) What does the bread and cereal group do for the body? (d) What does the fruit and vegetable group do for the body? 4. Why do we need to know the difference between complete and incomplete proteins? 6. What is the use of vitamins in the body?	1. To recognize the meaning of the term, malnutrition. 2. To investigate sources of information about the nutritive value of food. 3. To consider the daily need of certain amounts of the Basic Four for children under nine, children nine to twelve, teenager, and adults.
4. All persons throughout life have need for about the same nutrients, but in varying amounts. (a) The amounts needed are influenced by age, sex, activity, specific conditions of growth, and state of health, altered somewhat by environmental stress.	11. Assuming that boys and girls need more food when participating in active sports or strenuous physical exercise, which foods do they need more of?	4. To acquire a wider range of nutrient information. 5. To become aware of the age groups in our population who are the most likely to be malnourished. 6. To learn the common evidences of poor nutrition that one can see and observe in the actions and appearance of those who are poorly fed.

Concept from White House Conceptual Framework	Interview Questions Not Known	Behavioral Objective
4. (b) Suggestions for kinds and needed amounts of nutrients are made by scientists who continuously revise the suggestions in the light of findings of new research. 2. (a) Each nutrient has specific uses in the body. 4. (a) The amounts needed are influenced by age, sex, activity, specific conditions of growth, and state of health, altered somewhat by environmental stress. 1. Nutrition is the process by which food and other substances eaten become you. The food we eat enables us to live, to grow, to keep healthy and well, and to get energy for work and play. 5. Food use relates to the cultural, social, economic, and psychological aspects of living as well as to the physiological.	2. How many servings of the Basic Four should children and adults have per day for proper nutrition? 10. What are some food products which are enriched? Which nutrients are added to enriched products? 14. What would you like to gain from a nutrition education workshop? 8. Which nutrients are needed to promote mental capability? 13. Why are some snacks more nutritious than others?	7. To analyze research showing the effects of good and poor combinations of food on living subjects. 8. To specify how animal demonstrations are conducted. 9. To appreciate the nutrition education support which many food organizations are giving. 10. To be able to identify engineered foods. 11. To augment background nutrition information in relation to the School Lunch Program. 12. To recognize approaches for motivation of proper food selection in the School Lunch Program. 13. To interpret the effects of nutrition upon the mental and physical health of individuals. 14. To be able to select foods which meet the needs of

many areas of the curriculum. He also encouraged their participation in the entire workshop. Mr. Hicks thanked the researcher for the efforts which she had made in Blackwell for nutrition education and the workshop. The lesson plans for the nutrition education workshop appear in Appendix E of this study.

The researcher introduced the workshop by referring to last year's emphasis on nutrition with reference to the recommendation of the White House Conference on Food, Nutrition and Health, 1969, for new educational programs in nutrition which are dramatic and vital.

The researcher had distributed the workshop booklet, "What's The Good Word? Nutrition Education", as the teachers came to the vocational home economics department. This booklet was compiled by the researcher (Appendix C). It included the titles for the five days of the workshop, objectives for the workshop, and suggestions for integration of nutrition into many areas of the curriculum (Vannier, 1963). Space was provided in the booklet for additional suggestions which would be made throughout the workshop. Plans were explained for sharing ideas which the elementary teachers had used in the past and which came from various successful programs of three states were explained. The need to implement nutrition education into many areas of the curriculum was stressed as a step toward more effective teaching.

The researcher emphasized that in educating the "whole child" the school is in the picture in nutrition the same as any other academic subject. Since attitudes and habits are formed from birth on and play such an important part in the establishment of dietary patterns, the school must educate in this area as soon as possible. "Many of you have been doing this," was the remark of the researcher. The importance of

sharing these techniques with others during the workshop was noted.

The researcher noted that the specific recommendation number six from Panel IV of the White House Conference on curriculum in nutrition education stated that every person should be able to make wise decisions on his choices of food throughout his life without compromising his health, his enjoyment in eating, his values, and his goals for self-fulfillment. His decisions should be based on an understanding of his needs as determined by: (1) his physiological state and physical activities, (2) his knowledge of nutrient composition of plant, animal, and formulated foods in his environment, (3) his ability to distinguish between truth and distortion in relation to foods, nutrition, and health, and (4) his ability to use his available resources whatever they may be. The nutrition education panel also recommended that a comprehensive and sequential program of nutrition education be included as an integral part of the curriculum of every school in the United States and its territories. The development of nutrition curriculum and evaluation of existing curriculum was to be done with the White House Conference, 1969, "Conceptual Framework for Nutrition Education in the Schools" used as a resource. Therefore, the set of objectives for this workshop was developed using selected concepts from this conceptual framework on nutrition, the research explained to the teachers.. The behavorial objectives which appear on pages 2, 3, and 4 of this chapter were read to the workshoppers. Next, Nutrition in Action and Nutrition Education in Action (Martin), nutrition education books for the elementary teacher, were introduced. The researcher read the table of contents and called attention to the snack chart as a demonstration of the information that is contained in the books. Attention was also drawn to the nutritive

value chart in the Appendix G, page 267, (Martin, 1963). The Oklahoma Health Curriculum Guide (1969) lists these books in its bibliography. The studies which are done in nutrition education for elementary school curriculum use these books as references.

Malnutrition was defined as a condition of the body resulting from an inadequate or oversupply of the essential nutrients. It may also result from improper choice of nutrients. This was the frame of reference for the term, malnutrition, for the remainder of the workshop.

The pamphlet, Food for Fitness, was distributed. Emphasis was given to the importance of knowing the food groups and also the number of serving and amount per serving to promote proper nutrition. The color coding of the food groups was pointed out. The information contained in the guide emphasizes the fruits and vegetables that are valuable sources of vitamin C and vitamin A in addition to listing the other nutrients in the basic four and how they are used in the body.

The pamphlet, Nutritive Value of Food, was distributed and a comparison was made between the nutritive value of a potato and an apple to demonstrate the use of the booklet. The point was made that this reference and some others which would be given during the workshop would be materials which the teachers could suggest for parents as adult references when parent-teacher conferences were held.

In order to show the teachers the type of information which is available to them through the United States Department of Agriculture Yearbook, 1969, Food For Us All, the researcher referred to the article, "Nutrient Intake Below Recommended Allowance", showing United States diets of men, women and children, one day in spring 1965. The teachers

were informed that educators may receive the United States Department of Agriculture yearbooks free each year by writing to the senator of the United States Congress from their district.

"How a Hamburger Turns Into You," the color film, was introduced as being most appropriate for the upper elementary school child but the information was suitable for nutrition education of all age groups. The following introductory questions were asked without response in order to clue the audience in to pertinent information that is in the film:

> How does a grape, or a glass of milk, or an egg -- or some other food -- turn into you?
>
> What do you understand about the metabolism of protein in the 12-year old boy?
>
> What significance do proteins have to our bodies?

After the showing of the film the researcher remarked about how vividly the film demonstrates the vital connection between eating and growing. She stated that this is the kind of teaching which is of particular value in producing a behavioral change in children and adults. Teachers were told that this week they would have an opportunity to see the filmstrip, How Food Becomes You, and the student booklet, How Your Body Uses Food, resources which help to teach this relationship between food and health. The researcher described a way of meeting objective three of this workshop to consider the daily need for the specific amount of the Basic Four for children under nine, children nine to twelve, teenagers, and adults. This information is contained in the bulletin, Food for Fitness, and each teacher may adapt the information according to the age level desired. The amount of food needed daily was also mentioned in the puppet show which occurred next.

"Rocky and the Four Fuels", the puppet show, partially fulfilled objectives to analyze methods and techniques in nutrition education. The puppets were made so the color of the puppet corresponded with the color code of the Basic Four Food Group. The puppets were named "Meaty", "Milky", "Veg-Fruity", and "Toasty". "Apollo" and "Rocky", the space puppets, talked to each other and their friends, the four food groups, teaching the concepts of the Basic Four Food Groups for the adequate diet. Girls from the Future Homemakers of America, Blackwell chapter, were trained during the week of August 16 to 21, 1971, to present the puppet show. The researcher provided nutritious snacks for them after each practice. This puppet show can be performed in ten minutes. The vocational home economics teacher offered the show to the elementary teachers who requested to have the girls perform it for their classes during the school year, 1971-72. The FHA girls were pleased to view their show on the state wide television report of the workshop. The State Department of Vocational and Technical Education, Home Economics division made the arrangement to have a portion of the first day of the workshop televised.

A set of nutrition education guides for various areas of the elementary curriculum were secured from the Cleveland, Ohio, Elementary Schools and were made available for the elementary teachers to examine and use. These guides are from four to ten pages in length and give suggested ways of integrating nutrition education into the elementary school curriculum. The titles for the guides are: Preparing Our Noon Lunch at Home Alone, Worksheets for Primary Arithmetic and Language Arts, Seasonal Experiences, Foods in Mexico, Food in Early Cleveland, Foods in the Easter Traditions, What People Eat in The Congo, Thanksgiv-

ing Foods, Food Skits for Elementary Grades, Community Helpers, Our Friends in Story, Nutrition in Kindergarten, The Farm, Animal Friends at Home and School, Food in Washington's Boyhood, and Food in Lincoln's Time. The Blackwell elementary teachers became enthusiastic about the information in the guides. The third grade teachers chose some materials this first day of the workshop to have duplicated for their use. The time allotted was consumed and the hand-outs from the National Dairy Council could only be distributed with little comment.

The teachers were made welcome to stay and investigate display materials further and the first day's workshop was summarized with a concept from the White House Conference on Food, Nutrition, and Health which also partially formed the framework for the workshop: Food is made up of certain chemical substances that work together and interact with body chemicals to serve the needs of the body. (b) For the healthful individual the nutrients needed by the body are usually available through food (Mayer, 1970, p. 151).

Segment of Second Day - Big Ideas

The instructional model, "Big Ideas in Nutrition Education and How To Teach Them, Grades K-3", which had made a substantial contribution nationally to nutrition education was presented the second day of the workshop. The model was described in Chapter II of this study. The researcher reported at the workshop that "Big Ideas" proved to be more successful when tested in an area of Los Angeles-Orange County when the teachers had been trained in the use of the instruction model than when they had not been trained or were using only the textbook. "Big Ideas" was organized to encompass health, science, and social studies. They were presented by the Dairy Council in Grades four through six. The

innovative teacher may incorporate additional subject matter into the instructional model.

The objectives designed for the teachers who are trained with "Big Ideas" are as follows:

1. Identify behavioral objectives written in measurable terms.

2. Prepare an individual lesson plan in nutrition which incorporates the four main components of the instructional model.

3. Name the Four Food Groups.

4. When given a variety of foods, classify them according to the Four Food Groups.

5. Name two nutrients of major importance supplies by foods in each of the Four Food Groups.

6. Describe two nutrient interrelationships.

7. Analyze and evaluate a one-day food intake using the Four Food Groups as a guide.

8. Identify the common source of typical foods as used in three different environments.

9. Analyze a given meal from a cultural pattern other than your own, using the Four Food Groups as a guide.

10. Describe in order the major steps in production, processing and distribution of a given food item (Big Ideas Kit).

The "Big Ideas" student behavioral objectives are based on the concepts involved with the big idea that "Food is Life". Research shows that the best approach to teaching nutrition at the primary level is to organize studies into four "Big Ideas". These are:

Big Idea 1: Foods from the Four Food Groups supply the nutrients needed for growth and health.

Big Idea 2: A balanced daily diet includes foods selected from each of the Four Food Groups.

Big Idea 3: Man's environment influences his food choices.

Big Idea 4: Through various food processing methods, man has available a large variety of foods that are high in nutritional value and quality (Popham, 1970)

The Dairy Council Program Director in various regions of the United States would schedule a National Dairy Council nutrition education workshop involving "Big Ideas" on request from any elementary school.

Segment of Third Day - Engineered Foods

Workshoppers learned that "engineered foods" are those foods prepared and processed to improve nutrition, reduce cost, provide greater convenience in meal preparation, and improve acceptability of food. The USDA's Food and Nutrition Service has approved the specifications for this new type of product in order to make more nutritious food available to participants in Government Food Programs.

Teachers were told that the "fortified cake", an engineered food, was served in some deprived areas to school children for breakfast. When it was served with a glass of milk the combination fulfilled the basic requirements for breakfast. Multi-vitamins and protein are the main ingredients in this new fortified bakery product. It has the appearance of an ice cream sandwich. Actually, two flavors, either devil's food cake or yellow cake, surround a synthetic cream filling.

Engineered foods were unfamiliar to the elementary teachers at the workshop. "Bon-Trae", an engineered food from General Mills, was mentioned as a soy protein which can be used in combination with meat

to obtain nearly identical food value for less money and in a convenient form. Teachers learned the three flavors of the product and that the Oklahoma School Lunch Division was experimenting with a meat loaf recipe to determine what proportion of "Bon-Trae" could be used in a meat loaf without changing the flavor or appearance. The Archer Daniels Company, Midland, was producing a similar product called "Textured Vegetable Protein".

Segment of Fourth Day - School Lunch

The researcher stressed that in view of the complexity of the problem regarding the development of good food habits in children, encouragment needs to come from both the teaching staff and parents. Classroom learning should result in children becoming convinced that the school lunch program is a good and enjoyable way to eat. When this attitude is successfully acquired, then children will enjoy a wider variety of foods. This, then, was the purpose in having background information on the school lunch program for the workshop.

Oklahoma School Lunch Means Good Nutrition, "Tell It Like It Is", a folder of materials prepared by the Oklahoma School Lunch Division personnel, provided the background information which was presented at the workshop. The following concepts were explained: things we should know about school lunch menus; comparison of milk with a cola drink; the big difference between school lunch and any lunch; how the school lunch room can combine practice and theory; comparison chart displaying nutrients in type A school lunch with an a la carte lunch; protein-fortified, enriched-macaroni-type products which are used in combination with meat and cheese as recommended by the Food and Nutri-

tion Service, USDA; school lunch program is not a welfare service; guidelines for the amounts of foods for boys and girls of specified ages in school lunch programs; nutrient chart included in Always, The Children First; six session outline for "Parent Nutrition Workshop"; list of visual aids; Good Morning, World, a pamphlet, showed how to get one-third of the day's nutrients at breakfast; School Lunch, student booklet, gave the student an opportunity to record his own lunch habits as well as to provide nutrition information and etiquette in verse form; and The Inside Story of School Lunch Pizza, pamphlet, explained each food group and gave the universal school lunch pizza recipe reduced to the size for one $15\frac{1}{2}$" pizza.

One example of something which can be done to motivate the elementary school child to eat his lunch was the use of the "bird tree" activity. The "bird tree" may be made by mounting a branch from a tree. Each child may be given a bird with his name on it or he may make one to place under the tree. A monitor reports back to the classroom who ate their type A lunch, those who did may attach their birds high in the tree. This may be an incentive for the child to eat the balanced, healthy meal. The researcher showed a colored, 35 mm slide of the "bird tree" suggestion at the workshop. It was more effective for children to check each other on eating of the School Lunch than for the teacher to do so, the teachers were told.

Segment of Fifty Day - Snack Foods

Nutritious snack foods were identified with the use of the bulletin board, "Caught in the Web of Indecision -- Untangle Yourself". This idea or variations of it may vividly identify desirable snack food choices of individuals. A green fish net is draped horizontally

across a large bulletin board which is covered with gold colored hop-sacking. The title was placed in red plastic lettering. In the lower right corner a third dimension was affected with the figure of a healthy individual surrounded with milk, fresh fruit, fresh vegetable, dried fruit, and peanut butter pictures. A picture of an individual in distress was caught in the net which exemplifies a spider web. In addition, candy bars, cokes, gum and rich desserts are "Caught in the Web of Indecision". The information in Nutrition in Action (Martin, 1963) pertaining to snacks for all people was used for the learning experience. The two rules which should be applied in planning meals are:

(1) Plan snacks carefully within the framework of the entire daily food pattern;

(2) Confine selection of snack to fruits and vegetables if the total caloric allowance is low.

Martin's book may furnish additional information on comparison charts to facilitate teaching of wise selection of snack foods.

Teaching Nutrition (Pattison, Eppright, and Barbour, 1967) was used in combination with the "Comparison Cards" by the teachers as they identified the nutritive values of the apple and the potato and several other foods. The fact was discussed that there is good nutrition in pizza, hamburger, or a malt if the caloric intake for the day is balanced. Positive guide lines for the selection of food for students and adults were established.

Summary

The elementary school teachers from Blackwell, Oklahoma were involved in the nutrition education workshop. The workshop held during

in-service week was based on the White House Conference conceptual approach. Each teacher was provided with a workshop booklet (Appendix C). The lesson plans were made and used for each day (Appendix E). Numerous resource materials for use and adaptation of the elementary teacher to develop learning experiences for individual use were furnished. Evaluation of the workshop is discussed in Chapter V.

CHAPTER V

EVALUATION OF NUTRITION EDUCATION WORKSHOP

This chapter is concerned with a description of the degree to which nutrition education was accepted and incorporated into use by the elementary school teachers. There are two kinds of evaluations being discussed in this chapter. The immediate effectiveness was determined by interpreting findings which were gathered from the teachers at the close of the workshop. The long range effectiveness was determined by interpretation of those findings obtained by a follow-up five months after the workshop at the nutrition education meeting for the elementary schools. Two evaluation instruments, immediate and follow-up, were constructed and administered. Analysis of the data collected with the instruments was included to indicate the degree to which the curricula was accepted and incorporated into use. The content of the immediate and the follow-up evaluation questionnaire follow: integration of nutrition education into all areas of the elementary curriculum in Blackwell, Oklahoma; helpful methods, techniques, and resources in nutrition education for the elementary teachers to use in the elementary schools; nutrition information; sequencing of nutrition education plans into the elementary curriculum of grades K-6. The final section of this chapter presents a summary of the analysis of the data gathered on the evaluation questionnaires.

Respondents to Evaluation Questionnaire

The in-service workshop was attended by 40 teachers. At its close 23 of the 40 teachers completed the immediate evaluation questionnaire. Ten more teachers asked if they could complete the questionnaire and agreed to return it to the researcher later. Two of this last group completed and returned the questionnaire. Consequently, 25 questionnaires form the total number returned for the immediate evaluation. The principals and the two music teachers in the Blackwell elementary school did not attend the closing day of the workshop. Seven teachers did not attend the closing day because of the committee meeting of the Blackwell Teacher's Organization or duties in regard to team teaching, a recent innovation in many classrooms in the elementary schools in Blackwell, Oklahoma.

The nutrition education meeting of the elementary schools which was held five months after the workshop was attended by 40 elementary faculty members including two elementary principals. Thirty-three of those attending completed the follow-up questionnaire. The tally for the follow-up evaluation respondents shows an increase of eight respondents above those who responded immediately following the workshop.

The remarkable fact concerning the comparison of the number of respondents is that all 19 teachers in grades 4-6 answered the five-months follow-up evaluation questionnaire. A large number, 16 of the 25 respondents immediately following the workshop, were from grades K-3 compared to the 14 respondents from grades K-3 who completed the post evaluation. The composition of respondents are shown on Table II.

TABLE II

EVALUATION QUESTIONNAIRE RESPONDENTS--IMMEDIATE AND FIVE MONTHS FOLLOW-UP OF GRADES K-3 AND 4-6

Grades	Immediate Number	Five Months Follow-Up Number	Possible Number
K-3	16	14	20
4-6	9	19	19
Reading Spec.	0	0	1
Total	25	33	40

Integration of Nutrition Education into the Elementary Curriculum

All 25 of the teachers responding immediately after the workshop indicated a desire to integrate nutrition education into their elementary school classes for the 1971-72 school year. The interviews which were held before the workshop indicated that the health and physical education units were the only areas in which nutrition was integrated by the 20 interviewees in the Blackwell elementary schools. The dramatic arts areas attracted the most teachers who planned to integrate nutrition education at the end of the workshop. Twenty-three teachers developed 30 ideas for the integration of nutrition education activities into the dramatic arts area. Next highest in the number of ideas were 17 teachers who mentioned 20 suggestions in the language arts area. Continuing, 15 of the respondents offered 17 suggestions to integrate nutrition in the health and physical education areas. Fourteen teachers in the science area gave 15 specific suggestions for nutrition and science integration.

Fourteen respondents indicated a total of 24 suggestions into the math area. Six of the respondents did indicate a plan to integrate nutrition education in collateral areas of the curriculum. The data gathered immediately after the workshop, Table III, page 66, shows that integration was planned in many areas beyond the health and physical education unit.

TABLE III

COMPARISON OF IDEAS FOR INTEGRATION OF NUTRITION INTO CURRICULUM BY TOTAL RESPONDENTS

Area	Prior to Workshop N = 20	Completion of Workshop Teacher N = 25	Completion of Workshop Ideas N	Five Months Follow-Up Teacher N = 33	Five Months Follow-Up Ideas N
Science	0	14	15	18	24
Math	0	14	24	18	20
Language Arts		17	20	20	23
Dramatic Arts	0	23	30	25	25
Health and P.E.	16	15	17	23	27
Collateral	0	6	7	19	19
Total Ideas			113		138

A total of 113 suggestions for nutrition education integration were recorded by the teachers immediately following the workshop. This data provided evidence that Vannier's (1963) suggestions for curriculum integration of nutrition education into the elementary curriculum which the researcher had compiled in the workshop booklet and information and resources which are listed in the lesson plans of this study provided foundation for the teacher's plans.

When the five months follow-up evaluation data was analyzed, it was

significant that, again, the most integration was actually accomplished in the dramatic arts activities. Twenty-five out of the 33 respondents gave 25 suggestions for integration in the dramatic arts area. The next largest number of teachers, 23, mentioned 27 ideas used for integration in the health and physical education area. Nineteen teachers mentioned an idea in the collateral areas of curriculum. Eighteen teachers indicated 20 ideas for integration in math and 24 ideas were given by 18 teachers in the science area. In summary, the five months follow-up evaluation questionnaire demonstrated that 138 ideas for integration of nutrition education had actually been carried out in just the first five months of the school year following the workshop. These follow-up evaluation responses are shown on Table III, page 66.

An objective of the nutrition education meeting held five months after the workshop was to share and examine ideas which had been used in nutrition education in the elementary schools for the year, 1971-1972, in Blackwell, Oklahoma, and other schools in the United States. "What's the Good Word? Nutrition Education", the booklet used at the in-service workshop, was brought to this meeting by one-half of the teachers. They were asked to tell about ideas and projects which they had used this year. Several teachers stated that they were more enthusiastic about placing emphasis on nutrition education as a result of the research articles which had been reviewed on malnutrition and learning. Teachers reported the following experiences when integrating nutrition with language arts:

(1) Compared the food eaten in other countries with that eaten in America;

(2) Studied the geographical areas of the United States and the

world which produce certain foods, such as the areas where citrus fruits are raised;

(3) Discovered the ways in which foods are transported, packaged and marketed;

(4) Learned about milk pasteurization;

(5) Learned about the fortification and enrichment of food;

(6) Compared the diet of our early pioneers with that of the Indians and of people living today;

(7) Studied the life of the pioneers including the foods they had eaten;

(8) Studied fallacies and fads about food;

(9) Learned of the discovery of vitamins and their role in the prevention of disease.

These learnings were developed by various methods such as writing and presenting a skit, puppet show, films, filmstrips, and discussion along with the use of posters.

The teachers who shared ideas in the science area mentioned the following class experiences:

(1) Planting seeds to learn how foods grow and the effect which soil conditions and weather have upon their growth;

(2) Studied food spoilage and its prevention;

(3) Studied dental care in connection with the Florida Citrus Commission posters;

(4) Considered the danger of being overweight and underweight;

(5) Learned about the use of food additives.

The chief item mentioned in the communicative arts areas was dis-

cussing the daily school lunch to point out eating the balanced meal and encouraging the students to try new foods. A television set constructed by the students from an appropriately decorated cardboard box with newsprint on rollers and cartoon characters to form the pictures of the basic four food groups was displayed at the meeting. This was one example of work done by a fifth grade class in the dramatic arts area. Several cartoon murals on the choice of an adequate diet were also shown. Two booklets were chosen from those done by several classrooms in the elementary schools for display to picture the basic four food groups. Thus, nutrition education integration was evidenced orally as well as on the questionnaire in the limited time.

Interesting results were shown by comparing the ideas for integration of nutrition education by the same teacher on the immediate evaluation questionnaire and the follow-up evaluation questionnaire as compared with her answer in May, on the interviews. In the comparison analysis four K-3 teachers identified an increase of ideas actually done at the follow-up evaluation over those planned immediately after the workshop; six teachers identified a decrease in the number of ideas; and two teachers actually did the same number of things as they suggested might be done immediately following the workshop. On this comparison the same eight teachers in grades 4-6, four teachers identified an increase in ideas for integration of nutrition over those planned immediately following the workshop. Four teachers identified a decrease of ideas at the follow-up evaluation. The analysis demonstrates that an extensive amount of integration of nutrition education was not only planned but also accomplished. The comparison of ideas for integration of nutrition by the same teacher in three time periods appears on Table

IV.

TABLE IV

COMPARISON OF IDEAS FOR INTEGRATION OF NUTRITION BY SAME TEACHER IN THREE TIME PERIODS

Respondent Number	Prior to Workday Ideas	Immediately After Ideas	Follow-Up Ideas
	Grades K-3		
1	0	5	4
2	1	3	5
3	1	6	4
4	1	5	5
5	1	4	3
6	0	4	2
7	0	3	5
8	0	4	6
9	0	3	3
10	0	0	2
11	0	3	2
12	0	4	3
Totals 12	4	44	44
	Grades 4-6		
1	0	4	6
2	0	1	6
3	0	4	6
4	0	4	5
5	0	3	1
6	1	6	4
7	0	4	1
8	0	3	2
Totals 8	1	29	31

Helpful Workshop Materials Used by the Teachers

Twenty-two of the 25 teachers immediately following the workshop enumerated 12 different areas in which the workshop provided helpful

material. The 22 teachers named 38 materials which were helpful including all aspects of the nutrition education workshop. The tabulation in Table V, page 72, gives evidence of the fact that the workshop apparently provided helpful nutrition education materials for the elementary curriculum.

Even though the question was limited to listing three of the most helpful materials suggested at the workshop on the five months follow-up evaluation questionnaire, 17 teachers answered that 50 workshop materials had actually been helpful. The films and filmstrips constituted the greatest use by the 17 teachers. Eight of this number reported showing the film, "The Big Dinner Table", which the researcher had shown in the workshop. The filmstrips which are described in the lesson plans of this study which were used during the first five months of this school year had also been placed in the elementary school curriculum library in Blackwell. The games and bulletin board suggestions had been used by 16 teachers. "All" resource materials were listed ten times for being helpful on the questionnaire. Thus, it was evidence in the 50 uses of helpful materials reported on the follow-up evaluation questionnaire that all of the helpful material which was mentioned by the teachers had been included during the in-service nutrition education workshop.

The nutrition education puppet show, "Rocky and the Four Fuels", which was presented at the workshop by the vocational home economics students was not reported on the follow-up evaluation questionnaire. However, the teachers in nine elementary school rooms had requested the presentation of this show at three of the four elementary schools. The high school girls presented the puppet show to 129 elementary children in Blackwell during the first five months after the workshop.

Table V demonstrates the workshop helpful materials which teachers had planned to use and those which they had actually used five months after the nutrition education workshop.

TABLE V

HELPFUL WORKSHOP MATERIALS USED BY TEACHERS PLANNED AND FOLLOW-UP

Helpful Materials	Number for Planned Use*	Number Actual Use**
Films and Filmstrips	7	17
Bulletins	9	0
Unnamed Resource Materials	11	10
Integration of nutrition into teaching, games, pictures, posters, stories, flannel board, coloring book, puppet show, basic nutrition	10	0
Samples of activities for first grade level	1	1
National Dairy Council Materials	0	6
Games and Bulletin Boards	0	16
Totals	38	50

*Number planned for use of material immediately after the workshop.

**Number of materials actually used five months follow-up of workshop.

Nutrition Information Known by the Teachers

The immediate evaluation question pertaining to information teachers had gained from the in-service workshop in relation to the number of

servings of the Basic Four which are required for all individuals was answered by 14 of the teachers. The aspects of their answers included the amounts of food needed, personal application of required amount, reinforcement of knowledge, and ease of remembering the required amount with the color coding of the food groups. Then, on the follow-up evaluation the teachers were again asked what information they had used in relation to the Basic Four Food Groups and the number of servings per day which are required for children, adults, and teenagers. The total questionnaires filled out were 33. The 17 teachers who responded to this question gave these answers:

6 teachers--studied the Basic Four Food Groups and the amounts given in the health text;

10 teachers--named resource materials which had been introduced at the nutrition education workshop;

1 teacher---Weekly Reader contributes many new ideas.

This listing emphasized the interest of 17 teachers. The fact that the Weekly Reader, elementary school publication, was mentioned as contributing many new ideas by one teacher indicates the current trend of national awareness for proper food habits and adequate nutrition and, more importantly, that it is used by one elementary school teacher.

The researcher recognized the need for adults as well as school children to possess nutrition knowledge. Such knowledge may cause individuals to become more interested in changes regarding their own food habits (Brown, 1971). Therefore, the new information which had been learned regarding 12 specific nutrients was requested on the immediate evaluation questionnaire. The number who answered this question was 13

of the possible 25 teachers. Several respondents noted the relationship between mental development and protein, thiamine, and vitamin B_{12} as being necessary for optimum well-being. Vitamin C was necessary for "warding off cold", several respondents answered and it also needs to be replenished daily. One teacher stated that it was new information for her that adults still need calcium.

Teachers were asked on the follow-up evaluation what new information had been learned pertaining to 12 specific nutrients. Seventeen of the 33 respondents enumerated the nutrition facts. The follow-up evaluation totaled 28 responses given by 17 teachers as compared to the 13 answers given by 13 teachers on the immediate evaluation. These findings indicate that five months after the workshop half of the teachers were able to elicit an average of about two facts for only one nutrient. However, nearly one-half of the responding teachers did not make an attempt to answer this question. Some teachers stated at the nutrition education curriculum meeting that they referred to the Laidlaw Health books for nutrient facts. The analysis may be an indication that the elementary teachers responding does not consider it necessary to secure nutrition knowledge.

Sequencing of Nutrition Education into Elementary Curriculum

Sixteen of the 25 teachers answered the immediate evaluation question regarding the sequencing of nutrition education in the elementary schools of Blackwell, Oklahoma. In general, the teachers favored sequenching but the only suggestions were given by five teachers. The suggestions were to outline areas to be covered, to list in order of importance, and elementary teachers should study the aspects of such se-

quencing. This data gave evidence to the fact that the concepts of sequencing nutrition education is understood by only those five teachers who gave these responses.

The total number of teachers answering the follow-up evaluation questionnaire on sequencing nutrition education into the elementary curriculum was six. The answers of the three K-3 teachers stated that sequencing should include the importance of the balanced diet according to the Basic Four and the importance of exercise. The three teachers who answered in grades 4-6 suggested the concepts of keeping snacks inside the daily food allowance and of following the sequence in the nutrition chapters of the Laidlaw Health textbook. The researcher believes that the elementary teacher needs to have more time to consider the scope involved considering the magnitude of research and information which is being produced currently to assist elementary teachers in sequencing of nutrition education.

The 15 minutes allowed in the workshop for the introduction of research and examples of school programs in the United States involving the sequencing of nutrition education was not sufficient time to actually plan sequencing of nutrition education. An in depth study over a period of time would be necessary to implement such curriculum planning. Therefore, the researcher encouraged the elementary teachers to pursue formulating a curriculum guide in nutrition education for the elementary schools in Blackwell, Oklahoma.

Summary

The data gathered by the immediate evaluation questionnaire and the follow-up evaluation questionnaire in this study was analyzed in

this chapter. The analysis of the data demonstrated immediately following the workshop 113 suggestions were given while on the follow-up evaluation 138 ideas for integration of nutrition education had actually been carried out just in the first five months of the school year following the workshop. The verbal sharing of ideas at the follow-up nutrition meeting indicated that some teachers were interested in the research articles pertaining to malnutrition and learning. Innovative methods of teaching nutrition in which the children were involved were evidenced by actual examples brought to the nutrition meeting. The 138 ideas which were used by only 33 teachers may prove to make a change in the food habits and attitudes of close to 750 children.

Thirty-eight uses of helpful workshop materials were enumerated by 22 teachers immediately after the workshop. The seventeen teachers who answered the follow-up question pertaining to helpful materials which were received by means of the workshop listed 50 uses of these materials. This evidence indicated that the workshop provided a wealth of helpful materials for the elementary school curriculum. The FHA girls puppet show had also been used by nine of the elementary school rooms during the first five months of the workshop. The analysis here indicates that if some teachers are provided with materials for nutrition education in the elementary curriculum they will use it to enrich the program.

The nutrition information which was asked regarding the Basic Four was answered immediately after the workshop by 14 teachers. Both these teachers and the 17 follow-up respondents stated sources where this type of information could be obtained. The specific nutrition information responses nearly doubled on the follow-up evaluation by 17 teachers over the 13 responses of the 13 responding teachers immediately following the

workshop. More than one-half of the teachers made no attempt to answer this question. Therefore, some nutrition information was acquired as a result of the workshop. Even though 16 teachers favored sequencing, only five gave suggestions on the immediate evaluation questionnaire, only six responded to this question on the follow-up questionnaire. Sufficient time for curriculum planning of sequencing nutrition education was not available either at the workshop or the nutrition education meeting five months after the workshop. However, in addition to the written evaluation, the majority of the teachers have indicated actual value and use of the workshop information.

CHAPTER VI

FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

Summary

This study was undertaken to promote nutrition education in the elementary schools of Blackwell, Oklahoma by the secondary home economics teacher. A review of literature revealed the need for adequate nutrition of children and nutrition education in the elementary school curriculum. Innovative techniques for teaching nutrition education were identified and concepts were selected for a nutrition education workshop. On the basis of the literature reviewed a nutrition education interview questionnaire was developed.

One-half of the elementary teachers in Blackwell, Oklahoma were contacted and interviewed by the researcher. The data gathered from the interviews was analyzed. From these findings the behavioral objectives for a seven-hour in-service nutrition education workshop were formulated. Lesson plans were developed and a workshop on nutrition education for the elementary school curriculum was conducted. The evaluation of the workshop was accomplished by means of two written nutrition education questionnaires, immediate and follow-up. The data was analyzed and conclusions were drawn on the basis of the findings.

Conclusion

The accomplishments of the workshop were evidenced through the integration of nutrition education in the elementary curriculum and through the use of resource materials by the teachers. Even though the questions on nutrition information were not responded to sufficiently, some teachers indicated verbally that they appreciated having the refresher course.

One of the purposes of the nutrition education workshop was to teach ways in which nutrition education could be integrated in the elementary curriculum at the request of the majority of teachers who were interviewed in May. Whereas in the May interviews, 16 teachers indicated health and physical education were the only areas in which nutrition was integrated. Upon completion of the workshop, 113 ideas were planned in all areas of the curriculum. At the follow-up evaluation, 138 ideas had actually been accomplished and integrated. This number does not include those ideas which were shared verbally at the follow-up nutrition meeting of the elementary teachers or those which the researcher had seen and heard reports about during a visitation at four elementary schools during the five months period after the workshop. A wealth of activities involving students "doing thing" were evidenced.

Helpful workshop materials were enumerated by 22 teachers naming 38 helpful materials immediately after the workshop. At the follow-up evaluation, 17 teachers listed 50 helpful materials which had actually been used. The fact that nine teachers had requested the puppet show to be presented for nine elementary school classes during the five months period was significant in that it demonstrated that the teachers did

not deem it necessary to write facts on the evaluation questionnaire of which they knew the researcher was aware. The workshop apparently did provide a large number of helpful materials which were used. Fifty helpful materials which were used means that instead of only the textbook being used, on the average, each respondent used at least three supplementary materials to teach nutrition education. Teachers were anxious to receive these materials because they wanted innovative ways of teaching nutrition. In addition, their interviews had indicated that they wanted to help school children be more energetic as a result of more adequate nutrition.

The evaluation in regard to information about specific nutrients was less encouraging. Immediately following the workshop only one-half of the respondents answered one response over the broad field of twelve specific nutrients. Then, on the follow-up evaluation, 28 responses were given by 17 respondents which showed an increase of knowledge of those responding. However, the number of respondents, 17, compared to the possible 40 teachers attending did not provide the data the researcher had hoped to receive from the teachers.

The data on the sequencing of nutrition education, likewise, was very sparse on both evaluations. However, time did not allow for actual planning to be done in this area. Perhaps an objective type evaluation data-gathering instrument may elicit a greater response than the questionnaire device used in this study.

The thoughtful work of the researcher may well affect the eating habits and attitudes of many of the 1,100 school children in the Blackwell elementary schools for a life time. Many parents of the children have told the researcher that as a result of the elementary teachers placing a greater emphasis on nutrition their children are

placing a positive influence on the family food consumption patterns. The impact of the workshop has been noted informally in the community as reported to the researcher by school administrators, teachers, parents, and patrons. The researcher was desirous when undertaking this study to help individuals by influencing them to reach their full life potential. Adequate nutrition is a segment of that whole which assists one in meeting their full potential.

Recommendations

On the basis of the analysis of the findings of this study, the following recommendations are proposed by the researcher to promote nutrition education in the elementary curriculum. These recommendations may have implications for other nutrition education programs in the elementary curriculum.

1. That basic nutrition information and innovative methods of teaching an integrating nutrition education into the curriculum be required for certification of the elementary school teacher. The new methods of teaching should place emphasis on motivation of the individual to practice adequate food consumption.

2. That the school staff build a professional library in each elementary school building containing the Journal of Nutrition Education, Nutrition Program News, Food and Nutrition News, Dairy Council Digest, and resource books in nutrition education. A microfiche reader may facilitate a larger library at a smaller cost.

3. That curriculum guides be developed by the State Department of Education for nutrition education which would include the sequencing of nutrition in grades k-12. The emphasis for such guides must focus

upon the individual, the family, the community and their reaction in relation to nutrition using the conceptual approach.

4. That a nutrition coordinator be secured or educated for the elementary schools where the elementary teachers have not had formal or in-service training in nutrition education.

5. That a continuous follow-up after a workshop for nutrition education be accomplished with the cooperative effort of current resources such as county extension service, video-taped programs, health department, newspaper, radio and television programs.

6. That the secondary home economics teacher be challenged to promote nutrition education in the elementary school curriculum and assist in strengthening the school lunch program by education of children and young people to make proper food choices; conduct nutrition education programs for adults in conjunction with the Young Homemaker's Organization or similar group. The programs should be adapted to meet the needs of young children, pregnant mothers, and others in view of recent findings in regard to malnutrition and mental development as well as general well-being of the individual.

This chapter has included a summary of the study's findings, conclusions, and recommendations. Although the data gathered from the evaluation devices may be limited in some areas there is sufficient evidence that the seven hours did promote nutrition education in the elementary schools of Blackwell, Oklahoma.

The researcher hopes that the workshop has not only been effective in promoting the scope of content and methods in nutrition education of the elementary curriculum, but that it has also promoted happier, healthier, more productive boys and girls in Blackwell, Oklahoma. If their

choice of adequate diet continues the benefits extend to a lifetime and to succeeding generations.

SELECTED BIBLIOGRAPHY

Adamy, Clarence G.

1970 "Some Results--and Some Prospects of the Conference" (President's White House Conference on Food, Nutrition and Health, Dec. 1969) (paper read at the AHEA, 61st Annual Meeting, Cleveland, Ohio, June 25, 1970).

Adelson, Sadye F.

1968 "Changes in Diets of Household, 1955 to 1965, Implications for Nutrition Education Today." J. of Home Economics, LX (June), 448-455.

Alexander, Patsy R. and Frances Childress

1969 "In-Service Training Program in Nutrition For Bossier Parish Second Grade Teachers" (Louisiana Cooperative Extension Service, January 25 and February 8, 1969). (Mimeographed).

American Medical Association

1966 The Merchants of Menace. Chicago, Illinois: American Medical Association.

Amidon, Edmund J. and Ned A. Flanders

1967 The Role of the Teacher in the Classroom. Minneapolis, Minnesota: Association for Productive Teaching.

Amidon, Edna P.

1967 Concepts and Generalizations: Their Place in High School Home Economics Curriculum Development. Washington, D. C.: American Home Economics Association.

Anderson, Linnea and John H. Browe

1960 Nutrition and Family Health Service. Philadelphia: W. B. Saunders Company.

Arnold, Pauline and Percival White

1968 Food Facts for Young People. New York: Holiday House, Inc.

Banks, Mary Alice and Margaret A. Dunham

1959 Teaching Nutrition in the Elementary School. Washington, D. C.: National Education Association. (Micro Fiche).

Barnes, R. H.

1969. "Effects of Malnutrition on Mental Development--Truth and Half Truths." J. of Home Economics, LXI, (November, 1969), 671.

Bass, Ernestine

1969 "Homemaker's Knowledge of Nutrition Information" (Unpublished Master's thesis, University of Iowa, Ames, Iowa, 1969).

Blackburn, Mary L.

1970 "Who Turns the Child "Off" To Nutrition?" J. of Nutr. Ed., II (Fall, 1970), 45-47.

Bogert, L. Jean, George M. Briggs, and Doris Howes Calloway

1968 Nutrition and Physical Fitness, Philadelphia: W. B. Saunders Company.

Borg, Walter R., Marjorie L. Kelley, Philip Langer and Meredith Gall.

1970 "A Microteaching Approach to Teach Education." Beverly Hills, California: Macmillan Educational Services, Inc.

Boyd, Fannie L.

1959 "An Appraisal Device for Teachers in the Elementary School to Determine Opportunities for Learnings in Nutrition." (Doctor's thesis New York: Teachers College, Columbia, 1957) Abstract: J. of Home Economics, II (March, 1959), 217.

Brennan, Ruth

1967 Nutrition. Dubuque, Iowa: Wm. C. Brown Company Publishers.

Briggs, George M.

1970 "Nutrition Teaching and Nutrition Education." White House Conference on Food, Health and Nutrition, Final Report. (Washington, D. C., December, 1969), 151.

1970 "The Effect of a Nutrition Education Program at the Second Grade Level." J. of Nutr. Ed., II (Fall, 1970), 79-95.

Brown, Esther L.

1970 "Nutrition Content - The Basic Conceptual Framework." "Exciting New Teachniques for Teaching Nutrition." Illinois Teacher, XIV (Sept. - Oct.), 3-5, 17-44.

Brozek, Josef

1970 Research on Diet and Behavior." J. Am. Dietet. A.; LVII (October), 321-325.

Bruch, Hilde

1970 "The Allure of Food Cults and Nutrition Quackery." J. Am. Dietet. A., LVIII (October), 316-320.

Brush, Miriam K.

1971 "The 1969 White House Conference on Food, Nutrition, and Health Assessment of Progress." J. of Home Economics, LXIII (March, 1971), 174-176.

Bryan, Elsie

1970 "The Home Economics Teacher in the Elementary School." Forecast for Home Economics, October, 40.

Burchinal, Lee G. and Glenn R. Hawkes

1957 "Home Interviews with Families." J. of Home Economics, ILIX (March), 167-172.

Cameron, Janet L.

1970 "How Nutrition Affects Learning and Behavior." School Lunch Journal, XXIV (February), 30, 31.

1970 "Selected References on The Effect of Malnutrition on Mental Development Prepared for The American School Food Service Association." (College of Home Economics, Virginia Polytechnic Institute, Blackburg, Virginia) (Mimeographed).

Carrier, Robert

1971 "Learning Nutrition by Doing." Nutrition News, (October), 31.

Cassel, J.

1957 "Social and Cultural Implications of Food and Habits." American Journal Public Health, VLII (June 1957), p. 732-740.

Cereal Institute, Inc.

1970 "Breakfast and The Bright Life." Filmstrip and Teachers' Guide. Chicago: Cereal Institute, Inc.

Coplan, Ben

1970 "Mass Communications Can Help You Sell Foods and Nutrition: The Radio." (Speech at AHEA 61st Annual Meeting, Cleveland, Ohio, June 24, 1970).

Cooper, Lenna F., Edith M. Barber, Helen S. Mitchell, Henderika J. Rynbergen, and Jessie C. Greene

1963 Nutrition in Health and Disease. J. B. Lippincott Company.

Cotrell, Calvin J. and Garry R. Bice

1970 "Field Testing - In-Service Programs." (Columbus, Ohio: Third Annual National Vocational-Technical Teacher Education Seminar--Micro-Teaching and Video Recording, January, 1970), 80 ff. (Micro Fiche).

Creasy, Donna (Editor)

1972 "Respond to Change in Home Economics." What's New in Home Economics, (March), 33-35.

Currie, Bettie

1970 "Elementary School Program Prepare Child for Family Role." What's New in Home Economics, (May-Juen), 29-31.

DelliQuadri, P. Frederick

1966 Your Child From 6 to 12. Washington, D. C.: Superintendent of Documents.

Deutsch, R. M.

1967 "Who's to Blame for Nutrition Nonsense?" Today's Health, VL (May), 66-67.

Dickerson, Carrie Barefoot

1950 "Improving the Eating Habits of Third and Fourth Grade Pupils." Unpublished Master's thesis, Oklahoma State University, Stillwater, Oklahoma.

Dudley, Donna T., Marian E. Moore, and Edith M. Sunderlin

1960 "Children's Attitudes Toward Food." J. of Home Economics, LII (October), 678-681).

Duvall, Evelyn Millis

1971 Family Development. Philadelphia: J. B. Lippincott Company.

Dwyer, Johanna T.

1970 "Nutrition Questionnaire." (Boston, Massachusetts: Department of Nutrition, Harvard School of Public Health). (Mimeographed).

Dwyer, J. T., J. J. Feldman, and J. Mayer

1967 "Adolescent Dieters: Who Are They?" Am. J. Clin. Nutrition, XX, 1045-1056.

Dwyer, Johanna T. and J. Mayer

1969 "Biases in Counting Calories." J. Am. Dietet. A., LIV (April), 305.

Engel, Virginia

1963 "1963 Recommended Dietary Allowances--Their Development and Use in Practice." J. Am. Dietet. A., XLIV, 91-94.

Eppright, Ercel S. and Helen R. Lebaron

1960 "Our Responsibilities to Children and Youth." J. Am. Dietet. A., XXVIII, 354-356.

Eppright, Ercel S., Hazel M. Fox, Beth A. Fryer, Glenna H. Lamkin, and Virginia M. Vivian

1970 "Nutrition Knowledge and Attitudes of Mothers." LXII (May), 327-332. J. of Home Economics.

Eppright, Ercel, Mattie Pattison, and Helen Barbour

1967 Teaching Nutrition. Ames, Iowa: The Iowa State University Press.

Everson, G. J.

1960 "Bases for Concern About Teenagers' Diets." J. Am. Dietet. A., XXXVI, 17-21.

Farmer, James

1970 "New Job Revolution." J. of Home Economics, L (February), 85-90.

Fleming, Robert S.

1964 Curriculum for Today's Boys and Girls. Columbus, Ohio: Charles E. Merrill Books, Inc.

Frost, Joe L.

1969 The Elementary School--Principles and Problems. Boston, New York, Dallas: Houghton Mifflin Company.

Furst, Caryn M.

1970 "Nutrition's Effect on Mental Development." Forecast for Home Economics, (September), 160, 163.

Garn, S. M. and C. G. Rohmann

1966 "Interaction of Nutrition and Genetics in the Timing of Growth and Development." Pediatric Clinics of North America, XIII, 353-379.

Glenn, Morton B.

1971 "50 Most Asked Diet Questions." Ladies Home Journal, (April). (Mimeographed).

Godshall, Frances, R.

1958 Nutrition in the Elementary School. New York: Harper & Brothers Publishers.

Good, Carter V.

1963 Introduction to Educational Research. New York: Appleton-Century-Crofts.

Hall, Olive A.

1970 Research Handbook for Home Economics Education. Minneapolis, Minnesota: Burgess Publishing Company.

Harden, Margaret and Mina W. Lamb

1970 "Bioassay--Tool for Conceptual Learning." J. of Nutr. Ed., I (Spring, 1970), 13-15.

1965 "Activating a Nutrition Education Program in Pennsylvania Schools." Vocational-Technical Curriculum Guide. Harrisburg, Pennsylvania: Department of Public Instruction.

Havighurst, Robert J.

1961 Human Development and Education. New York: David McKay Company, Inc.

Hayes, Jack (Editor)

1969 Food For Us All - Yearbook of Agriculture. Washington, D. C.: Superintendent of Documents.

Hegsted, D. M.

1970 Eat to Live. Chicago, Illinois: Wheat Flour Institute.

Hicks, Clifford B.

1970. "Eat! Says Fat Little Johnny's Mother." Today's Health, VIIIL (February, 1970), 48.

Hill, Mary H.

1960 "Planning for Nutrition Education in Elementary Schools." J. of Home Economics, LII, 259.

Hille, Helen M.

1960 "Food for Groups of Young Children Cared For During The Day." Children's Bureau Publication Number 386. Washington, D. C.: U. S. Dept. Health, Education and Welfare.

Hyman, Herbert

1955 Survey Design and Analysis. Glenco, Illinois: The Free Press Publishers.

Jennings, Hilda Jo

1970 "An Investigation of the Increase of Dietary Iron in School Lunch Programs through the Addition of Liver to Meat Loaf." Un published Doctor's thesis, Oklahoma State University, Stillwater.

Jolley, Margaret Virginia

1970 "Development of Home Economics Curriculum Materials and Their Use in a Field Study of Applied Nutrition." Unpublished Doctor's thesis, Oklahoma State University, Stillwater.

Kibler, Robert J., Larry L. Barker, and David T. Miles

1970 Behavioral Objectives and Instruction. Boston: Allyn and Bacon, Inc.

Kahn, Robert L. and Charles F. Cannell

1957 The Dynamics of Interviewing. New York: John Wiley and Sons, Inc.

Kilander, H. Frederick

1968 School Health Education. New York: The Macmillan Company.

1961 Preparing the Health Teacher. Washington, D. C.; American Association for Health, Physical Education and Recreation, a Dept. of the National Education Association.

King, Charles Glen

1970 "Notes on the History of Nutrition in America." J. Am. Dietet. A., LVI (March) 188-190.

Knudsen, Andie L. and Marjorie Newton

1960 "Behavioral Factors in Nutrition Education." J. Am. Dietet. A., XXXVII, 222-225.

Kopel, Bernice Helene

1970 "Home Economics With Low Income Families and Implications For College Food and Nutrition Curriculum." Unpublished Doctor's thesis, Oklahoma State University, Stillwater, Okla.

Krathwohl, David R., B. Bloom, and B. B. Masia

1964 Taxonomy of Educational Objectives. The Classification of Educational Goals. Handbook II: Affective Domain. New York: David McKay Company, Inc.

Levitsky, David A.

1971 "Nutrition, Mental Development and Behavior". Nutrition News, XXXIV (December), 15, 18.

Livingston, Sally K.

1971 "What Influences Malnutrition?" J. of Nutr. Ed., 18-27.

Maddox, Gaynor

1960 "Teach Children Not To Get Fat." Food and Nutrition News, XXXII (October), 1, 4.

Mann, G. V.

1969 "Nutrition Education--U.S.A." Food and Nutrition News. XXXIVI (November). Chicago: National Livestock and Meat Board.

MacReynolds, Joan Parker

1970 "Can Teaching Good Nutrition be Bad?" J. of Nutr. Ed., II (Summer), 13-15.

Markham, Margaret

1972 "Developmental Nutrition and the Facts of Life." What's New in Home Economics, (January), 31-33.

Marshall, William H.

1971 "Educational Directions." J. Am. Dietet. A., LVIII (June), 509-511.

Martin, Ethel Austin

1954 Roberts' Nutrition Work With Children. Chicago: University of Chicago Press.

1963 Nutrition Education in Action. New York, Chicago: Holt, Rinehart and Winston.

1971 Nutrition in Action. New York, Chicago: Holt, Rinehart and Winston.

Mayer, Jean

1970 White House Conference on Food, Nutrition and Health Final Report, 1969. Washington, D. C.: Superintendent of Documents.

Mead, Margaret

1964 "Food Habits Research: Problems of the 1960's." National Academy of Sciences--Publication 1225. Washington, D. C.: National Research Council.

Miller, Delbert C.

1970 Handbook of Research Design and Social Measurement. New York: David McKay Company.

Monsen, Elaine R.

1971 "The Need for Iron Fortification." J. Nutr. Ed., II. (Spring), 152-155.

Mrak, Emil

1971 "Nutrition Ignorance and Apathy vs. Food Abundance." School and Society, XCIX (January), 9.

McDonald, Solona C. and Huldah B. Owen

1970 "Nutrition Education Workshop." J. Nutr. Ed., II (Fall), 68, 69.

McFarland, James P.

1972 "Nutrition Education for Youth." J. of Home Economics. LXIV (February), 34-38.

McGrath, Earl J. and Jack T. Johnson

1968 The Changing Mission of Home Economics. Columbia University, N.Y.: Teachers College Press.

McWilliams, Margaret

1968 Nutrition for the Growing Years. New York: John Wiley and Sons, Inc.

National Dairy Council

1970 Big Ideas in Nutrition Education and How To Teach Them. Resource Packet. Chicago: National Dairy Council with Dairy Council of California.

1970 Nutrition Source Book. Chicago, Illinois: National Dairy Council.

1969 Weight Control Source Book. Chicago, Illinois: National Dairy Council.

1968 National Academy of Sciences. Recommended Dietary Allowances. Revised Edition, Washington, D. C.: Food and Nutrition Board, National Research Council.

Newberry, Donna Lynn (Editor)

1970 "Notes on Vitamins." What's New in Home Economics, XXXIV, 10-12.

Nerbovig, Marcella H. and Herbert J. Klausmeier

1969 Teaching in the Elementary School. New York: Harper & Row Publishers.

New York State Education Dept.

1969 Health, Grades K-3. Physical Health and Nutrition Prototype Curriculum Materials. Albany, New York: Bureau of Elementary Curriculum Development.

1969 Health, Grades 4-6. Physical Health and Nutrition Prototype Curriculum Materials. Albany, New York: Bureau of Elementary Curriculum Development.

Norman, C.

1958 "Group Discussion in Changing Food Habits." J. Am. Dietet. A., XXXIV (November), 1187-1189.

North, A. Frederick

1968 Research Issues in the Health and Nutrition of Early Childhood. Washington, D. C.: Office of Economic Opportunity. (Micro Fiche).

Ogilvie, Carole Anne

1969 "The Development of Education Media for Teaching High School Boys' Foods and Nutrition Classes." Unpublished Master's thesis, Oklahoma State University, Stillwater.

Oklahoma State Department of Education.

1967 Oklahoma Health Education in Oklahoma Elementary Schools. Oklahoma City: Okla. State Dept. of Ed.

Oklahoma Health Department

1969 Food Your Children Need. Children's Bureau Folder No. 14. Oklahoma City: Oklahoma Health Department.

Overholt, Mary Key

1972 "Nutrition Education for Youth." J. of Home Economics, LXIV (February), 34-38.

Pease, Damaris and Lydia V. Swanson

1958 "Middle Childhood and Preadolescence Deserve Study Too." J. of Home Economics, L, 33.

Perky, J. B.

1960 Nutrition Education in the School, Home and Community. Curriculum Guide. Oklahoma City: Oklahoma Division of Vocational Education, Home Economics Division.

Petermann, Ruth

---- What To Eat and Why. Stillwater, Oklahoma: Cooperative Extension Service.

Petersen, Mary E. and Constance Kies

1972 "Nutrition Knowledge and Attitudes of Early Elementary Teachers." J. of Nutr. Ed., IV, (Winter), 11-15.

Plitz, Albert

1969 How Your Body Uses Food. Chicago, Illinois: National Dairy Council.

Pursell, Marjorie

1971 Where We Get Our Food. Chicago, Illinois: National Dairy Council.

1964 Your Health-How Can You Help? Chicago, Illinois: National Dairy Council.

Read, Merrill S.

1970 "Malnutrition and Learning." Education Digest, (April), 8-11.

1970 "Malnutrition and Mental Retardation." J. of Nutr. Ed., II (Summer), 23.

Ricci, E. M.

1970 "Environmental Influences On Nutrition and Behavior." Dairy Council Digest, XLI (Nov., Dec.).

Russell, Ruthanna (Editor)

1971 "The 1969 White House Conference on Food, Nutrition, and Health Assessment of Progress." J. of Home Economics, LXIII (March), 174-176.

Sadow, Sue

1969 Project Head Start--Nutrition Kit. Washington, D. C.: Department of Health, Education and Welfare.

Schaefer, Arnold E.

1969 "The National Nutrition Survey." J. Am. Dietet. A., LIV (May), 371.

Schaefer, Arnold E. and Ogden C. Johnson

1969 "Are We Well Fed? The Search for the Answer." Nutrition Today, IV (Spring), 2.

School Lunch Division

1970 A Report of Oklahoma Food Habits Survey. Oklahoma City, Oklahoma: School Lunch Division, Oklahoma Department of Education.

Schindler, Raimon E.

1960 "Telling Is Not Teaching." J. Am. Dietet. A., XXXVII (August), 118-120.

Schubert, Earl P.

1970 "Nutrition Education: How Much Can or Should Our Schools Do?" J. of Nutr. Ed., II (Summer), 9-13.

Scrimshaw, Nevin S. and John E. Gordon

1968 Malnutrition, Learning, and Behavior. Cambridge, Mass.: The MIT Press.

Scott, Dorothy D.

1959 Home Economics - New Directions. Washington, D. C.: American Home Economics Association.

Sebrell, W. H.

1969 "Recommended Dietary Allowances--1968 Revision." J. of Am. Dietet. A., LIV (February), 103-108.

Sharp. J. T., J. P. Henry, S. K. Sweany, W. R. Meadows, and R. J. Pietra

1964 "The Total Work of Breathing in Normal and Obese Men." Journal of Clinical Investigation 43: 728 (April) cited in Weight Control Source Book. Chicago, Illinois: National Dairy Council.

Simons, Alice Ann

1960 "An Elementary Challenge in Nutrition Teaching." J. of Home Economics, LII (December), 846, 847.

Sinacore, John S. and Gail Harrison

1971 "The Place of Nutrition in Health Education Curriculum" J. of School Health, (December), 2282-2289.

Sipple, Horace

1971 "Problems and Progress in Nutrition Education." J. Am. Dietet. A., LIX (July), 18-21.

Smey, Justine

1958 "Nutrition Education in the Elementary Schools." J. of Home Economics, L (May), 335-339.

Smith, Janice

1966 "Improving Research Proposals." J. of Home Economics, LVIII (October), 643-646.

Spindler, Evelyn B.

1970 Mr. Peanut's Guide to Nutrition. New York: Standard Brands Educational Service.

Spitze, Hazel

1970 "Home Economics for the Seventies." "Accent on Nutrition For Consumers." Illinois Teacher, XIV (Sept. - Oct.).

1970 "Putting Nutrition on the Line." What's New in Home Economics, XXXIV, 13, 14.

Stare, Frederick J.

1968 Eating for Good Health. New York: Doubleday and Company.

1970 "Nutrition Improvement and World Health Potential." J. Am. Dietet. A., LVII (August), 107-110.

Stewart, Margaret R.

1971 "Nutrition and Learning." Nutrition Program News, (March-April).

Stiebeling, H. D. and T. A. Dreis

1959 "Habits and More." Food-The Yearbook of Agriculture. Washington, D. C.: USDA.

Strow, Helen

1970 "Learning By Doing." J. of Nutr. Ed., I (Spring), 17-19.

Sugarman, Jule M.

1969 Your Child From 1 to 6. Washington, D. C.: Superintendent of Documents.

Sunkist Growers

---- Build a Better You with Fresh Citrus. Los Angeles, Calif.: Sunkist Growers.

Swanson, Pearl

1965 Calcium. Chicago: National Dairy Council.

Tacionis, Frances B.

1972 "Respond to Change in Home Economics." What's New in Home Economics, March, 1972, 26.

Tyler, Ralph W.

1967 Basic Principles of Curriculum and Instruction. Chicago: The University of Chicago.

Ullrich, Helen Denning

1970 "National Nutrition Survey and Action Program." J. of Nutr. Ed., II (Summer), 6, 7.

United States Department of Agriculture

1972 "Nutrition Classroom Rolls Through Kentucky." Food and Home Notes, January 10, 2.

1970 Annual Inventory of Available USDA Popular Publications. Washington, D. C.: Extension Service.

1970 Nutritive Value of Foods. Washington, D. C.: Superintendent of Documents.

1969 Dietary Levels of Household in the United States Spring 1965. Washington, D. C.: Superintendent of Documents.

1969 Food For Us All. Washington, D. C.: Government Printing Office.

1969 Food Consumption of Households in the United States Spring 1965. Washington, D. C.: Superintendent of Documents.

1968 Nutrition Education Conference, February 20-22, 1967. Miscellaneous Publication No. 1075. Washington, D. C.: Superintendent of Documents.

1968 The Good Foods Coloring Book. Washington, D. C.: Superintendent of Documents.

1964 Food For Fitness--A Daily Food Guide. Washington, D. C.: Government Printing Office.

Vannier, Maryhelen

1963 Teaching Health in Elementary Schools. New York: Harper & Row.

Venable, T. C.

1957 "Nutrition Education - What Is The Problem?" J. Am. Dietet. A., XXXIII (June).

Vivian, Virginia

1971 "Calories Do Count." Speech at the Interagency Meeting on Nutrition, Northwest High School Auditorium, Oklahoma City, Oklahoma, February 20.

Vivian, Virginia, Ercel S. Eppright, Hazel M. Fox, Beth A. Fryer, and Glenna H. Lamkin

1970 "Family Environment." J. of Home Economics, LXII (April), 241-245.

Von Housen, Ardith H.

1971 "Food-Life Depends On It." J. of Nutr. Ed., III (Fall), 61063.

Wagner, Muriel G.

1970 "The Irony of Affluence." J. Am. Dietet. A., LVII (October), 311-315.

Wakefield, Lucille M.

1966 "The Interview Technique in Research-Source of Bias." J. of Home Economics, LVII (October), 640-642.

Whipple, Elisabeth, Loretta D. Stifel, and Lillian Brennand

1970 "The Three R's Help Make Good Eating Important." J. of Nutr. Ed., II (Fall), 55-58.

Willgoose, Carl E.

1962 Health Education in the Elementary School. Philadelphia: W. B. Saunders.

Winterfeldt, Esther

1971 "Adelle Davis--Fact or Fallacy." Paper at Interagency Meeting on Nutrition, Northwest High School Auditorium, Oklahoma City, Oklahoma, February 20. (Mimeographed).

Zenor, Frances

1968 "Elementary, Secondary, and Adult Education, Florida." J. of Home Economics, LX (September). 543.

APPENDIX A

SUGGESTED LEARNING EXPERIENCES FOR NUTRITION EDUCATION IN ELEMENTARY SCHOOL CURRICULUM CLEVELAND, OHIO

"Food in Lincoln's Time" material is for use by teachers who want to add a new approach to Lincoln's birthday, or to supplement a pioneer unit. It may be used:

1. To help the children understand Lincoln as a boy. All children understand food, what it means to be hungry. They can understand Lincoln better if they can picture him as a boy without milk, or as a boy who had nothing but potatoes to eat if times were bad.

2. To provide information for plays and skits about Lincoln's boyhood or about pioneer families.

3. To provide an opportunity to integrate nutrition in the present curriculum by giving the teacher additional material to emphasize the kinds and amounts of foods which are especially important to help children grow and feel well.

These activities are not graded, but can be adapted by the teacher to her age group:

Dramatize a meal in the Lincoln home at different periods of Abe's boyhood.

Plan skits in which a child of today visits Abe's home, or in which Abe eats dinner with a family in present day Cleveland.

Compare the foods in the two homes: Bring out the difference in transportation, storage, supply, variety, cooking and serving of food.

Bring out the fact that the supply and type of pioneers' food depended very much upon the season of the year, while ours does not.

Bring out the differences in foods in the two dinners: Discuss first what foods might be in a good dinner for a child today. Include as a minimum two or more servings of fruit or vegetables including potatoes, one serving meat, fish or poultry, one glass milk, bread and butter or margine. Could both dinners include fruits and vegetables, meats, milk, bread and butter or margarine? Which ones?

Discuss how Abe Lincoln had to work to help his family get food: Bring out that the food was often not adequate in quantity or quality. Discuss how children today can help in procuring and preparation of food. Background Information.

Foods common in Lincoln's boyhood home (divided into five food groups): Food on the Lincoln Farm in Kentucky--1809; cost of living and wages in Abe's boyhood; worksheet (a map of seven midwest states).

Uses suggested: Locating towns where Lincoln lived; drawing the westward route of the Lincoln family; listing foods common in Lincoln's boyhood that children enjoy today (Whipple, Stifel, Brennard, 1970, pp. 55, 56).

APPENDIX B

NUTRITION EDUCATION QUESTIONNAIRE PREPARED TO COLLECT INTERVIEW DATA FROM ELEMENTARY SCHOOL TEACHERS IN BLACKWELL, OKLAHOMA

INTERVIEW INTRODUCTION

I've heard many favorable comments from Dr. Rowley, Mr. Hicks, and parents about the work that the elementary teachers have been doing this year in nutrition education. I hope that we can share more ideas in the future in our newsletters and meetings.

During the in-service week we are planning a nutrition education workshop for the elementary teachers. Dr. Rowley and Mr. Hicks are very interested and helpful in our nutrition education progress.

We believe that it will make your work easier if we do some learning and planning together with all of the elementary teachers. We are also in a position to offer you the most recent research in nutrition education.

This semester I am taking a Food and Nutrition Course and this summer I will be taking a course, Creative Nutrition Teaching.

In order to make this workshop the most meaningful we would like to know what you would like for this workshop to cover. You have the best techniques and know the child best in your particular grade level. Therefore, your adaptation of information is an individual matter.

I would like to take notes when I ask you a few questions so that I can remember your wishes when I work out behavioral objectives for the workshop. Do you mind?

I do appreciate your cooperation and the time you have spent on this interview.

INTERVIEW QUESTIONNAIRE

Transitional Questions:

A. What is the school's responsibility in teaching the elementary school child nutrition and proper food habits?

B. In which areas of the curriculum have you used nutrition education this year?

Questionnaire Item:	Concept (Conceptual Framework for Nutrition Education in the Schools, White House Conference on Food, Nutrition and Health, 1969, p. 151).
1. Which food guide can be used to explain the foods essential for the individual to grow, to keep healthy, and to get energy for work and play?	1. Nutrition is the process by which food and other substances eaten become you. The food we eat enables us to live, to grow, to keep healthy and well, and to get energy for work and play.
2. How many servings of the Basic Four should children and adults have per day for proper nutrition? What are the size servings per day of each group for early elementary children? For upper elementary children? For adults?	4. All persons, throughout life, have need for about the same nutrients, but in varying amounts. (b) Suggestions for kinds and needed amounts of nutrients are made by scientists who continuously revise the suggestions in the light of findings of new research.
3. (a) What does the milk group do for the body? (b) What does the bread group do for the body? (c) What does the meat group do for the body? (d) What does the fruit	2. Food is made up of certain chemical substances that work together and interact with body chemicals to serve the needs of the body. (b) For the healthful individ-

and vegetable group do for the body?

4. Why do we need to know what the difference is between complete and incomplete proteins?

5. Why is iron important for body functions?

6. What is the use of vitamin C in the body?

7. Upon what basis do you choose the amount and type of food that you include in your diet each day?

8. Which nutrients are needed to promote mental capability?

9. Since heredity may set limits in the individual as to size, body build, and other factors, how does good nutrition affect an individual in these areas?

10. What are some food products which are enriched?

11. Assuming that boys and girls need more food when participating in active sports or strenuous physical exercise, which food do they need more of?

12. What cultural patterns are you influenced by in your selection of food?

ual the nutrients needed by the body are usually available through food.

2. (a) Each nutrient has specific uses in the body.

5. Food use relates to the cultural, social, economic, and psychological aspects of living as well as to the physiological.

(c) Food can be chosen to fulfill physiological needs and at the same time satisfy social, cultural, and phychological wants.

4. (a) The amounts needed are influenced by age, sex, size, activity, specific conditions of growth, and state of health, altered somewhat by environmental stress.

4. (b) Listed on previous page.

4. Listed on previous page.

5. (a) Food is culturally defined.

13. Why are some snacks more nutritious than others?

Questions for Workshop Suggestions:

14. What would you like to gain from a nutrition workshop?

15. Which resources have been most beneficial to you this year, such as health, social studies, science, or others?

5. (c) Listed above.

APPENDIX C

PROGRAM BOOKLET OF THE IN-SERVICE NUTRITION EDUCATION WORKSHOP FOR ELEMENTARY SCHOOLS

ELEMENTARY

NUTRITION EDUCATION

IN-SERVICE WORKSHOP

August 23-27, 1971

"MAKE IT HAPPEN"

I. "Cooperative Effort in Nutrition Education"

II. "Proper Nutrition--Educate the Whole Child"

III. "Why the Type A School Lunch?"

IV. "Malnutrition, Learning, and Behavior"

V. "Practice What You Have Learned"

Juanita Sodowsky

Home Economics Teacher

Objectives for workshop:

1. To recognize the meaning of the term, malnutrition.

2. To investigate sources of information about the nutritive value of food.

3. To consider the daily need of certain amounts of the Basic Four Food Groups for children under nine, children nine to twelve, teenagers, and adults.

4. To acquire a wider range of nutrition knowledge.

5. To become aware of the age groups in our population who are the most likely to be malnourished.

6. To learn the common evidences of poor nutrition that one can see and observe in the actions and appearance of those who are poorly fed.

7. To analyze research showing the effects of good and poor combinations of food on living subjects.

8. To specify how animal demonstrations are conducted.

9. To appreciate the nutrition education support which may food organizations are giving.

10. To be able to identify some "engineered" foods.

11. To augment background nutrition information in relation to the School Lunch Program.

12. To recognize approaches for motivation of proper food selection in the School Lunch Program.

13. To interpret the effects of nutrition upon the mental and physical health of individuals.

14. To be able to select foods which meet the needs of adults and students.

15. To analyze methods and techniques in elementary nutrition education.

16. To design teacher aids for use in nutrition education in the elementary school.

Suggestions for curriculum corriculum correlation and integration of elementary nutrition education on the following pages are taken from--Maryhelen Vannier. Teaching Health in Elementary Schools. New York: Harper & Row, 1963. pp. 224-230.

NUTRITION EDUCATION CORRELATED AND INTEGRATED

SOCIAL STUDIES

1. Study local, state, and national food and drug laws. Bring illustrations to class showing how these laws are obeyed on can labels or other ways.

2. Compare the food eaten in other countries with that eaten in America.

3. Learn of the discovery of vitamins and their role in the prevention of such conditions as scurvy; pellagra; etc.

4. Study the geographical areas of the United States which produce certain foods, such as the cornbelt, and the areas where citrus fruits, sugar cane, etc., are raised.

5. Discover the ways in which foods are transported, packaged, and marketed.

6. Learn of the laws regarding the pasteurization of milk and the fortification and enrichment of food products.

7. Compare the diet of our early pioneers with that of the Indians and of people living today.

8. Study the role diet plays in longevity today as well as in the past.

9. Learn of local coworkers in the health protection of the people in your community in the foods they eat.

10. Compare the methods of cooking used by the pioneers with those of today.

11. Study the varieties of frozen food on the market today and compare these with methods of canning and preserving food used by the early American settlers.

12. Bring to class current-events clippings which pertain to nutrition.

13. Prepare and give a class party based upon the theme, "The Gold Rush Days."

14. Study the life of the pioneers, their problems, government, music, type of clothing worn and food eaten, games they played, and their work. Illustrate what you learn from this experience by writing and presenting a play or pageant using scenery, props, and costumes made in class.

15. Learn about some of the great health heroes, such as Louis Pasteur or Clara Barton.

16. Study fallacies and fads about food.

17. Learn to what extent the United States "feeds the hungry people of the world." Have a debate on the pros and cons of this action.

18. Study about epidemics and plagues in Europe and America.

19. Have a "tasting" party of each favorite vegetable or fruit brought to class.

20. Have each class or grade plan the school cafeteria luncheon menu for a special holiday such as Thanksgiving, assisted by the school dietitian. Divide the class into committees, such as publicity, table decorations, etc.

21. Divide the class into groups, giving each the responsibility to plan, prepare, and serve one foreign dish for an all-school International Night party. Have each group present a folk dance or song typical of that nation for entertainment.

Additional suggestions:

NUTRITION EDUCATION CORRELATED AND INTEGRATED ELEMENTARY CURRICULUM

SCIENCE

1. Learn how foods grow, and the effect soil conditions and the weather have upon their growth.
2. Conduct animal and plant feeding experiments.
3. Test foods for chemical content, such as potatoes for starch, or beets for sugar.
4. Make a chemical analysis of milk.
5. Study the influence of the endocrine glands, emotions, and fatigue upon diet.
6. Learn how animals are government-inspected for human consumption.
7. Study about food spoilage and its prevention.
8. Learn the relationship of sugar to tooth decay.
9. Study how foods such as prunes or apricots are dehydrated.
10. Study the claims of certain "health foods" and health faddists.
11. Learn the relationship of a good diet to good health and to the prevention of colds, food poisoning, etc.
12. Study the effect of a poor diet upon the skin, hair, and body.
13. Learn of the dangers of being overweight and underweight.
14. Learn how food-alergy tests (skin) are made.
15. Study the hazards of food additives.
16. Learn how exercise helps in body growth and the digestion of food.
17. Study the effects of coffee, tea, alcohol, and cola drinks.
18. Learn how diet can prevent night blindness or other vision defects.

NUTRITION EDUCATION CORRELATED AND
INTEGRATED ELEMENTARY CURRICULUM

THE COMMUNICATIVE ARTS

1. Report verbally or in writing on places they have visited which were connected in some way with food.

2. Suggest ways to learn to like new foods.

3. Locate foods in the Basic Four Food Groups. Tell something important about each food.

4. Discuss ways foods are sold, such as meat by the pound, eggs by the dozen, milk by the quart, etc. Correlate this with the units of measure in arithmetic.

5. Discuss the daily school lunch menu served in the cafeteria, which one pupil can copy on the board. Guide each child in making a wise food selection. Send the weekly menu home and enlist the cooperation of parents in helping their children choose to eat the Type A school lunch. Also send the Basic Four Food chart home to parents who prepare their child's school lunch, and suggest that this chart is an aid for planning meals according to good nutritional standards.

6. Discuss and list on the chalkboard the relationship of good food to growth and good teeth.

7. Tell how to care for a pet, or a baby sister or brother, or how wild animals seek food and what they eat.

8. Make a list of new foods seen or heard about on radio or television, and of new foods each has tasted or would like to taste.

9. Talk about ways to improve eating habits at school, at home, and in a restaurant.

10. Plan a class visit to a grocery store, giving each group a definite assignment, such as having them visit the meat section and find out all they can about it, another the frozen-food section, etc. Have each group compile a written, illustrated report on what they learned.

11. Have individual students report on their experiences in eating at a Chinese, French, or Italian restaurant: invite foreign adults to visit the school and describe or serve a typical meal or type of food from their homeland.

12. Teach the class to prepare simple menus in an electric skillet or out of doors. Experiment with different kinds of cooking such as

boiling, frying, baking in pans or in foil. Have the group discuss what they learned from these experiences.

13. Demonstrate correct table setting and experiment with flower arranging. Discuss the importance of atmosphere to good eating.

14. Devise a miniature cafeteria or grocery store. Figure out how much a well-balanced meal costs, or "buy" the groceries for a family of two, four, six, or eight persons for a week on a preconceived budget. Have each pupil write a paragraph on what he learned from doing this.

15. Clip weekly food ads from the newspaper. Discuss how to shop well and get the most from the food dollar.

16. Tape-record skits, special reports, or other types of pupil work.

17. Write and give a playlet, puppet show, or skit to a local P.T.A. group on any aspect of nutrition.

18. Give an oral report on a book, such as Mabel Robinson's Pioneer Panorama (Denison), or Swift Arrow by Alice Pendergast (Denison). Describe a typical day in the life of the main character of either book.

Additional suggestions:

NUTRITION EDUCATION CORRELATED AND INTEGRATED

ARITHMETIC

Have the students:

1. Make height and weight charts for recording the montly weighing and measuring of each child.
2. Calculate daily caloric intake; make a list of those foods which are the highest and lowest in calories.
3. Make graphs showing the results of animal and plant feeding experiments.
4. Add food costs.
5. Show in percentages and pie graphs the part of the family budget which should be spent on food, rent, medical care, insurance, clothing, and recreation.
6. Determine the food cost per person in a family of two adults and two-grade-school children, aged 6 and 9, for one day, one week, and one month.
7. Show with measured string the length of an average large and small intestine of a child and adult; make a model from clay or papier-mache showing the exact size of the stomach, liver, heart, or other organs of the body used in the digestion of food and circulation of blood.
8. Discover the difference between the cost of three well-balanced daily meals for one person or a family of four and the price of a doctor's home visit and medication for treating a cold for one person or all four family members for one week.
9. Determine which foods are the cheapest and most nutritious to buy in the main food groups.
10. Study food bargains as advertised in the local paper and show how much can be saved by buying the groceries for one week for a family of four by planning well-balanced daily and weekly meals.
11. Prove on paper that advertised "real" bargains which might be available are not money-savers for all.
12. Observe and estimate on paper how much money is lost weekly in one's own home by food waste, spoilage, and improper storage.
13. Discover and prove which is cheaper--eating a well-balanced diet or medical and dental care.
14. Plan and give a party in your home for five friends for one and one-half dollars. Determine the cost of the refreshments per

friend. Make a list of foods which you served. See if you can have a party for this same number of friends for less money."

*Vannier, Maryhelen. Teaching Health in Elementary Schools. New York and Evanston: Harper & Row, 1963.

NUTRITION EDUCATION CORRELATED AND INTEGRATED ELEMENTARY CURRICULUM

DRAMATIC AND ART ACTIVITIES

1. Do dramatizations of good manners at the table; a "mother" buying, preparing, and serving a meal; eating out at a large restaurant.

2. Visit a farm, bakery, dairy, or ice cream plant. Have the class make a list of things they would like to find out about, and make an illustrated poster of their visit.

3. Color pictures of fruits, vegetables, and other types of food, cut them out, and arrange a balanced meal on a desk or flannelboard.

4. Make a clock, learn how to tell time, and show the best time for eating each meal, going to bed, getting up, and resting.

5. Play cafeteria, store, or going shopping.

6. Display in the school lunchroom or lobby, children's posters of three balanced, well-planned meals.

7. Make posters showing "Foods I Take in a Lunch Box", "Foods for a Birthday Party", "Cold Weather or Summer Foods", "Foods for Thanksgiving", etc.

8. Create and give a puppet show or playlet revolving around any aspect of how to select a balanced diet.

9. Discuss and list on the board the relationship of good food to growth and teeth.

10. Dramatize the correct way to chew and eat food properly; exaggerate the incorrect ways to do so.

11. Bring magazine pictures of people eating food. Make up and tell a story about the pictures.

12. Make jigsaw puzzles out of colored pictures of food.

13. Present in charade form any activity done in the preparation of food, such as rolling dough or shelling peas. Have the class guess what is being done and select the best charade.

14. Make models of different kinds of foods such as oranges, corn, steak, pie, etc., out of clay or heavy cardboard. Have each pupil make up a story about any one of these which will stress its nutritional value.

NUTRITION EDUCATION CORRELATED AND INTEGRATED ELEMENTARY CURRICULUM

PHYSICAL EDUCATION

1. Learn the relationship of exercise to growth.
2. Become aware of the dangers of stimulants, alcohol, drugs, tea, tobacco, and soft drinks to athletic performance.
3. Learn which are the quick-energy foods, and the best foods to eat before playing in strenuous or competitive games.
4. Study the caloric intake of athletes.
5. Learn how to keep well and be in top physical condition.
6. Learn the cause and relationship of fatigue to accidents.
7. Learn the role that poor nutrition plays in poor posture.
8. Know their own body type, proper height, and proper weight according to age.
9. Learn how diet affects the rate and speed of recovery from sprains, broken bones, and other injuries.
10. Know the value of eating a good breakfast as a means of avoiding fatigue and becoming a top performer.

Additional suggestions:

APPENDIX D

EVALUATION DEVICES USED IMMEDIATELY AFTER THE WORKSHOP AND FIVE MONTHS FOLLOW-UP

Name _____

Grade _____

Subject Area, if team teaching

_____

ELEMENTARY NUTRITION EDUCATION EVALUATION OF IN-SERVICE WORKSHOP

1. Do you plan to integrate nutrition education into your class curriculum this year?

   If so, how would you integrate it in science?

   In math?

   In Language arts?

   In Dramatic and Art activities?

   In Health and Physical Education?

   Others?

2. What new facts have you learned during the workshop in regard to nutrition and nutrition problems?

   What information have you gained in relation to the Basic Four and the number of servings which are required for children, adults, and teenagers?

What new information have you learned pertaining to the specific nutrients?

Protein

Carbohydrates
Starches

Sugars

Fats

Vitamins
A

Riboflavin

Thiamine

Vitamin C

Vitamin D

Minerals
Calcium

Iodine

Iron

Others

What additional information would be helpful to gain during the next school year, 1971-72?

3. Do you believe planning for sequencing in nutrition education in Blackwell will help to motivate the child to practice adequate nutrition habits and attitudes?

If so, what suggestions do you have for sequencing nutrition education in the curriculum?

4. What has been most helpful to you in the workshop?

Films?

Bulletins?

Others?

APPENDIX E

LESSON PLANS FOR NUTRITION EDUCATION WORKSHOP

LESSON PLAN FOR FIRST DAY

Introduction of workshop by Dr. George Rowley, Superintendent, at annual breakfast of Blackwell City Schools and Bill Hicks.

These books and periodicals were used for general reference to the entire workshop:

1. Bogert, L. Jean. Nutrition and Physical Fitness.
2. Eppright, Pattison, and Barbour. Teaching Nutrition.
3. Kilander, H. Frederick. School Health Education.
4. Martin, Ethel. Nutrition in Action.
5. Martin, Ethel. Nutrition Education in Action.
6. Martin, Ethel. Roberts' Nutrition Work With Children.
7. National Dairy Council. Nutrition Source Book.
8. Journal of American Dietetic Association.
9. Journal of Nutrition Education.

Objective 1: To recognize the meaning of the term, malnutrition.

Objective 2: To investigate sources of information about the nutritive value of food.

Objective 3: To consider the daily need of certain amounts of the Basic Four for children under nine, children nine to twelve, teenagers, and adults.

Objective 15: To analyze methods and techniques in nutrition education for the elementary curriculum.

Learning Experiences	Resources
Explain program, objectives, and suggestions for integration of nutrition into the elementary curriculum.	"What's the Good Word? Nutrition Education". AT
Briefly refer to books and periodicals which were used for general reference.	Nutrition in Action, Appendix G. Martin, Ethel. DB
Define malnutrition.	

Learning Experiences	Resources
Discuss the Food for Fitness, Nutritive Value of Food, Food for Us All, and other nutritive value resources.	Food for Fitness, USDA Leaflet 424. CP Nutritive Value of Food, Home and Garden Bulletin, No. 72. CP Food for Us All, 1969, USDA Yearbook. DB Food Your Children Need, Children's Bureau Folder, No. 14, Oklahoma Health Department (1969). CP "Recommended Dietary Allowances-- 1968 Revisions". Journal of American Dietetic Association. February 1969, pp. 103-108. DB.
Demonstrate the vital connection between eating and growing, size of servings, and importance of amino acids by showing a colored film.	"How a Hamburger Turns Into You." National Dairy Council.
Puppet show, "Apollo and the Four Fuels" to teach elementary children the value of the Basic Four and the amount they should eat each day. This show was done by the FHA girls who were available for shows at the elementary schools during the school year.	Felt puppets for the space puppets, "Apollo" and "Rocky" and their friends, "Veg-Fruity", "Meaty", and "Milky". Script for "Apollo and the Four Fuels". AT
The Cleveland, Ohio nutrition education curriculum guides were introduced. Ideas for integration of curriculum may be received from these guides.	Resource Units for Teachers of Material for Integration of Nutrition in the Elementary School Curriculum. Cleveland, Ohio. DB-NF Food in Washington's Boyhood Animal Friends at Home and School Food in Lincoln's Time Foods in the Easter Traditions Our Friends in Story The Farm On the Way to the Arctic Circle What People Eat in the Congo Foods in Mexico Thanksgiving Foods Seasonal Experiences Food in Early Cleveland Preparing our Noon Lunch at Home Alone

Learning Experiences	Resources
	Community Helpers Nutrition in Kindergarten Food Skits for Elementary Grades Worksheets for Primary Arithmetic and Language Arts
Elementary student booklets and teacher's guides which are available free from the National Dairy Council were distributed to the workshop teachers.	"Eat the 1-2-3-4 Way!" CP "Your Health". CP Lenski, Lois. "My Friend the Cow" (Primary Book). CP Pursel, Marjorie. "Where We Get Our Food". (Upper Elementary) CP Piltz, Albert. "How Your Body Uses Food". CP All of above--Free from National Dairy Council)

List of Symbols

AT	Appendix of thesis
CP	Copies provided all teachers and free
DB	Display books, booklets, and periodicals
DC	Display chart
DP	Display pictures
F	Free
NF	Not free
SB	Student booklet
TG	Teacher's guide
CL	Cirriculum library
NDC	National Dairy Council

LESSON PLAN FOR SECOND DAY

Objective 4: To acquire a wider range of nutrition knowledge.

Objective 5: To become aware of the age groups in our population who are the most likely to be malnourished.

Objective 6: To learn the common evidences of poor nutrition that one can see and observe in the actions and appearance of those who are poorly fed.

Objective 15: To analyze methods and techniques in nutrition education for elementary school curriculum.

Learning Experiences	Resources
Nutrition status of some Americans and resources for available nutrition information knowledge were reviewed.	"Are We Well Fed? The Search for the Answer." Schaefer and Johnson. Nutrition Today. Spring, 1969. DB
View statistics of National Nutrition Survey, 1967.	Transparencies with survey tabulations from Schaefer and Johnson.
Discuss why children should be taught not to get fat after review of article.	"Eat! Says Fat Little Johnny's Mother." Hicks. Today's Health. February, 1970. DB
Briefly review L-158 for a resource of nutrients, selection of sources, and the body function associated with the nutrient. Possibilities of use in future curriculum meetings.	"Teach Children Not to Get Fat." Maddox. Food and Nutrition News. (October, 1960), Sebrell-1968 revisions.
Read AMA bulletin at home to be aware of the pseudo-health lecturers, advertisements and salesmen who produce nutrition nonsense.	"The Merchants of Menace", bulletin, American Medical Association. CP - NF
Report the conclusions of the pilot study of "Big Ideas".	"The Effect of a Nutrition Education Program at the Second Grade Level", Journal of Nutrition Education. Fall, 1970, Supplement 1. DB
Presentation of teacher methodology in nutrition education in the elementary school, "Big Ideas".	"Big Ideas in Nutrition Education and How to Teach Them--Grades K-3". National Dairy Council.

Learning Experiences	Resources
	The materials listed here are available from the National Dairy Council:
	"Your Health, How Can You Help?" TG - SBL.
	"We All Like Milk", TG - DP. Series of 11 by 14½ pictures.
	"What We Do Day By Day", TG - DP. Series of 11 by 14½ pictures.
	"Every Day Eat the 1-2-3-4 Way". DC - CP
	"Processing of Milk", set of pictures, DP.
Essential nutrients and the fun of eating together were the points of emphasis in "The Big Dinner Table".	"The Big Dinner Table", colored 16 mm. film. National Dairy Council. F
	Researchers Constructed the Following
	"Mystery Box", model.
	"Four Food Group Color Circle".
	"Measuring Device", model.
	"Grocery Bag", packages.
Brief comments on the resource materials which are listed.	"Headstart Nutrition Kit". H.E.W. Department. CP (Sadow) - "Food Coloring Book", USDA provided one for all elementary students.
	Extension bulletins on many Surplus Foods. CP - "Mr. Peanuts Guide to Nutrition". Peanut Commission. SB - CP - F
	"Build a Better You With Fresh Citrus". Florida Citrus Commission. CP - F.
	"Adelle Davis--Fact or Fallacy". Winterfeldt. CP
Film portrays the Headstart program and good nutrition.	"Jenny is a Good Thing", film. Health, Education, and Welfare Department.

LESSON PLAN FOR THIRD DAY

Objective 7: To analyze research showing the effects of good and poor combinations of food on living subjects.

Objective 8: To specify how animal demonstrations are conducted.

Objective 9: To appreciate the nutrition education support which many food organizations are giving.

Objective 10: To be able to identify some "engineered" foods.

Objective 15: To analyze methods and techniques in nutrition education.

Learning Experiences	Resources
Effect of milk on animals by the wall chart.	"Milk Made the Difference", National Dairy Council. DC - TG
Report of rat feeding experiment at Blackwell, Spring 1970, by an elementary teacher. Discussion of rat feeding experiments.	"Animal Feeding Demonstrations for the Classroom". National Dairy Council. DB
Explanation of enriched and fortified foods.	Food For Us All, 1969. USDA Yearbook. DB "The Need for Iron Fortification", Monsen. Journal of Nutrition Education. Spring, 1971. pp. 152-155.
View "Your Daily Bread" to emphasize enriched food.	"Your Daily Bread", 12½ minuted colored, 16 mm film. American Bakers. F
Discussion of "From Flour to Bread".	"From Flour to Bread", Wheat Flour Institute. DB
"Engineered Foods" were explained and identified.	Food and Home Notes listed below: DB "Engineered Food?", November 23, 1970. "USDA Research--For a New Food", February 1, 1971. "Bacon--The New Analog", November 2, 1970. "It's Iron-Enriched From Whey", March 1, 1971.

Learning Experiences	Resources
	"Hi-Protein Snacking", August 16, 1971.
	"Bon Trae", General Mills "engineered food". DP - "TVP, Textured Vegetable Protein". Archer Daniels Company. DP
Explanation of the Florida Citrus Commission, School Services Division.	Florida Citrus Commission: 2' x 3'-
	"Citrus Guard Your Health",
	"You Need These Foods Daily for Good Health",
	"Keep Physically Fit",
	"Nutrition Ladder".
Discussion of "Nutrition Ladder".	"Nutrition Ladder". SB - CP
Explanation of the "Food and Drug Administration".	Food and Drug Administration:
	"How the FDA Works for You",
	"Fact Sheet from the FDA",
	"Some Questions and Answers About Food Additives",
	"Some Questions and Answers About Dietary Supplements",
	"Food Colors",
	"Declaration of Ingredients on Labels for Standardized Foods", - CP.
"Food for a Modern World", viewed particularly relating it to the FDA and pesticides.	"Food for a Modern World", 21½ minute, colored film. National Dariy Council. F

LESSON PLANS FOR FOURTH DAY

Objective 11: To augment background nutrition information in relation to the School Lunch Program.

Objective 12: To recognize approaches for motivation of proper food selection in the School Lunch Program.

Objective 13: To interpret the effects of nutrition upon the mental and physical health of individuals.

Objective 15: To analyze methods and techniques in nutrition education for the elementary curriculum.

Learning Experiences	Resources
Explanation of the rationale of the School Lunch Program.	The following are available from the American School Food Service and Oklahoma School Lunch Division: CP - DP "Let's Close the Nutrition Gap", "Always, The Children First", "Good Morning World! Let Breakfast Make It a Wonderful Day!", "School Lunch", "Which Lunch for Your Child", "Do You Know a Classroom When You See It?", "Students School Lunch Means Good Nutrition", "School Lunch Good Fare or Welfare?", "The Inside Story of School Lunch Pizza".
Show 35 mm. colored slide, "Red Bird Tree".	"Red Bird Tree", 35 mm. colored, slide.
Recognize relationship of motivation approaches for proper selection of food at School Lunch Program.	Oklahoma School Lunch Means Good Nutrition--"Tell It Like It Is". DP Oklahoma Food Habits Survey, Oklahoma School Lunch Division, 1970. DP "Who Teaches School Lunch?" School

Learning Experiences	Resources
	and College Food Management. February 1970.
	"Join Us for Lunch", colored 15" by 19" poster, National Dairy Council. F - DP.
	"If You Think Breakfast Is For The Birds....Think Again!". Cereal Institute. F - CP
Acquaint teachers with "Food, Energy, and You". The film showed the basic process by which plants store energy. Then, food and energy is related to children.	"Food, Energy, and You", 16 mm. colored, film. Association Films. F
Explanation and understanding of the research which shows the effects of nutrition and malnutrition on experimental animals and people.	"How Nutrition Affects Learning and Behavior". Cameron, School Lunch Journal, 1970.
	Malnutrition and Learning. Read, 1969. CP
	"Malnutrition and Mental Retardation." Read, 1960. Journal of Nutrition Education. DB
	"Effects of Malnutrition on Mental Development-Truth and Half Truths." Barnes. Journal of Home Economics, 1969. DB
	"Nutrition's Effect on Mental Development". Forecast for Home Economics, 1970. p. 160. DB
View filmstrips and examine booklets for possible integration ideas in the room but own choices.	The following were available from Wheat Flour Institute: F Filmstrips: Grain From Farm to Table - Why Eat A Good Breakfast? Booklets: F DB From What To Flour? - Eat to Live. Milling Industry", sequence charts, 8½¼ by 11¼. F DP
Display and briefly explain the materials available on breakfast.	"What Did You Have For Breakfast This Morning?" 23" x 46" DP CP F NDC
	"Upper Elementary Students' Activity Piece on Poster above. CP F TG NDC

LESSON PLANS FOR FITH DAY

Objective 14: To be able to select foods which meet the needs of adults and students.

Objective 15: To analyze methods and techniques in nutrition education of the elementary curriculum.

Learning Experiences	Resources
Identification of nutritious snack foods.	"Caught in the Web of Indecision--Untangle Yourself!" Researcher's Bulletin Board. Nutrition Education in Action, Martin, 1963. DB Teaching Nutrition. Eppright, Pattison, and Barbour (1963). DB Comparison Cards. National Dairy Council. F DC
Sources of additional nutrition information examined. The various aspects of weight control were discussed.	"Eat to Keep Fit Not Fat!", 1-1227 Petermann, OSU Extension. DB Weight Control Source Book. National Dairy Council. F DB "50 Most Asked Diet Questions." Glenn, 1971. Ladies Home Journal. Reprint, DB.
"Vitamins From Food" displayed the role of vitamins in body regulation. Food sources supply the vitamins most people need.	"Vitamins From Food", colored, 16 mm. film, National Dairy Council. F
Distribution of posters	"A Good Breakfast is Fun". Florida Citrus Commission. 2' x 3' DC, colored. F - "Build a Better You With Fresh Citrus". 2' x 3' DC, colored, F CP
Break	
Evaluation of workshop with written constructed questionnaire.	Immediate Nutrition Education Questionnaire, "Immediate Evaluation Questionnaire".

Learning Experiences	Resources
Explanation of permission to reproduce the materials by the researcher.	"Sources of Nutrition Education Materials, 1971." CP
Materials may be adapted for appropriate use in the elementary curriculum.	"Suggestions for Teaching Nutrition". Brown (1970) Nutrition Classes (OSU, 1971).
Showing of bulletin board suggestions and explanation.	35 mm. slides, colored, Sodowsky.
"Why Foods Spoil" viewed. For the upper elementary grades showing scientific facts.	"Why Foods Spoil", 16 mm. film, colored. NF - Encyclopedia Britannica Educational Corporation. Catalog of Films. CP
The remaining resources could be mentioned only.	"Ollie and the Orange"; "Pedro's Gift to Ollie"; "Smile, Ralph, Smile"; Flannelgraph characters with stories. Sunkist Growers. DB CL NF
	Curriculum Guides: Health--Grades K-3. Health--Grades 4-6. Strand I Physical Health--Nutrition. New York State Education Department 1970. CL
	"A Teaching Nutrition Set", Illustrative Cards. Oklahoma State Health Department. DP CL TG
	The following were provided free from the National Dairy Council: CL
	Dairy Farm Panorama Kit - TG
	How Food Becomes You - TG
	Educational Materials Catalog - CP
	"Alexander's Breakfast Secret", kit. Cereal Institute, Inc. CL

APPENDIX F

SOURCES OF NUTRITION EDUCATION MATERIALS

American Bakers Association, 1700 Pennsylvania Avenue, N.W., Washington, D.C., 20006.

American Dental Association, 211 East Chicago Avenue, Chicago, Illinois 60611.

American Dietetic Association, 620 North Michigan Avenue, Chicago, Illinois, 60611.

American Home Economics Association, 2010 Massachusetts Avenue, N.W., Washington, D.C., 20036.

American School Food Service Association, 4104 East Cliff Avenue, Denver, Colorado, 80222.

Cereal Institute, Inc., 135 South LaSalle Street, Chicago, Illinois, 70703.

Cleveland Health Museum and Education Center, 8911 Euclid Avenue, Cleveland, Ohio, 44106.

Dairy Council, Inc., Judy Trippett, Program Director, 6240 East 15th Street, Tulsa, Oklahoma.

Encyclopedia Britannica Educational Corporation, 425 North Michigan Avenue, Chicago, Illinois 60611.

Florida Citrus Commission, School and Youth Department, Lakeland, Florida.

Food and Drug Administration, Department of Health, Education, and Welfare, 3032 Bryan Street, Dallas, Texas, 75204.

General Mills, Food Service and Protein Products Division, Minneapolis, Minnesota, 55440.

Kellogg Company, Department of Home Economics Services, Battle Creek, Michigan, 49016.

Oklahoma School Lunch Section, State Department of Education, Frances V. Dobbins, Nutrition Coordinator, 4545 Lincoln Boulevard, Oklahoma City, Oklahoma, 73105.

Metropolitan Life, One Madison Avenue, New York, N. Y., 10010.

American Medical Association, Health Education Materials, 535 North Dearborn Street, Chicago, Illinois, 60610.

National Research Council, Food and Nutrition Board, 2101 Constitution Avenue, Washington, D.C., 20418.

The State Education Department, Bureau of Elementary Curriculum Development, Albany, New York, 12224.

Nutrition Foundation, Inc., 90 Park Avenue, New York City, New York, 10016.

National Dairy Council, 1011 N.W., Loop 410, San Antonio, Texas, 78213.

National Livestock and Meat Board, 36 South Wabash Avenue, Chicago, Illinois, 60603.

Oklahoma State Health Department, Oklahoma City, Oklahoma, 73102.

Oklahoma State University, Extension Service, Stillwater, Oklahoma, 74074.

Oklahoma State University, Kay County Extension Service, Courthouse Basement, Newkirk, Oklahoma, 74647.

Peanut Associates, Inc., 10 East 40th Street, New York, New York, 10016.

Standard Brands Educational Service, P.O. Box 2695, Grand Central Station, New York, New York, 10017.

Sunkist Growers, Mary E. Wilson, Editorial Home Economist, Consumer Service Division, P.O. Box 2706, Terminal Annex, Los Angeles, California, 50054.

Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402.

United Fresh Fruit and Vegetable Association, 777 14th Street, N.W., Washington, D.C., 20005.

Wheat Flour Institute, 14 East Jackson Boulevard, Chicago, Illinois, 60604.

USDA Food and Nutrition Service, Washington, D.C., 20250.

U.S. Department of Health, Education, and Welfare, Public Health Service, National Institutes of Health, Washington, D.C.

U.S. Department of Health, Education, and Welfare, Social and Rehabilitation Service, Children's Bureau, Washington, D.C.

Headstart

Mary Blake, Carnation Company, P.O., Box 19578, Dept. HS-68, Los Angeles, California, 90019.

VITA

Juanita Deffner Sodowsky

Candidate for the Degree of

Master of Science

Thesis: A WORKSHOP CONDUCTED BY THE VOCATIONAL HOME ECONOMICS TEACHER TO PROMOTE NUTRITION EDUCATION IN THE ELEMENTARY SCHOOLS

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Education: Graduated from Blackwell High School, Blackwell, Oklahoma, in May, 1936; attended Oklahoma State University 1936 - 1939, received the Bachelor of Science degree from Oklahoma State University, June, 1969; completed the requirements for the Master of Science degree at Oklahoma State University in July, 1972.

Professional Experience: Secretary at Blackwell High School, 1942-1945; home economics teacher in Billings, Oklahoma, spring, 1969; kindergarten teacher and vocational home economics teacher in Blackwell, Oklahoma, 1969-1970, vocational home economics teacher, Blackwell High School, 1970 to present.

Professional Organizations: American Home Economics Association, Oklahoma Home Economics Association, Omicron Nu, American Vocational Association, Oklahoma State University Home Economics Alumni Association, American Association of University Women, National Education Association.